

CADENLAND: AN ETHNOGRAPHIC CASE STUDY EXPLORING A MALE'S
VIDEOGAMING LITERACIES ON CRAYTA WITHIN THE LARGER STADIA
CULTURE

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by

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*CADENLAND: AN ETHNOGRAPHIC CASE STUDY EXPLORING A MALE'S
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DEDICATION

I dedicate this dissertation to God, my exceeding joy, who makes all things possible. Faithful is he that has started it, and dependable is the one finishing it!

ABSTRACT

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As content creation becomes more accessible and social through gaming, defying hardware barriers, not deterred by software interfaces, moving gaming into the cloud has made it a massive multiplier for players to explore their literacies and creativity without the clutter of the physical space. Videogaming's popularity has sparked controversy, especially the perception of videogames as violent and having a negative influence on players or having no social value in it. Hence, the need to create a balance by focusing on the merits inherent in videogames. This virtual ethnographic case study explored the literacies found in a 26-year-old male gamer's videogaming on Crayta within a larger Stadia cloud gaming community. The methodology included observations, semi-structured and unstructured interviews, in-game chats, game-based artifacts, and thematic analysis to analyze the data gathered from the participant.

Findings reveal how videogaming experience enhanced the participant's engagement, resulting in four significant literacy outcomes. Results are discussed regarding implications for collaboration, creativity and innovation, critical strategic thinking, and social skills. Included is a hybrid theoretical framework of layered literacies and the feedback loop for examining the lived-in experiences of the participant.

KEY WORDS: Videogames; Literacies; Males; Adolescents; Young adults; Stadia; Crayta; Ethnographic-case study; Virtual ethnography.

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CHAPTER I

Introduction

I am not a big fan of videogaming but watching my son play with so much enthusiasm and passion, such as I will describe, has got me pondering: Is videogaming more than just a fun way to blow off the steam? Is there something that requires attention or is related to literacy skills and practices? What can I explore through this? These questions have aroused my curiosity to seek answers through my research in this area.

“Help! Dawn(s) have been hiding out around these areas. Can you defeat them?”

“A group of Rogue Haze Assassin(s) was spotted on the outskirts. Can you please take care of it?”

“On my journey, I saw a group of corrupt Ninja(s). Can you defeat them?”

These were the instructions/prompts popping up on-screen while my 10-yr-old son (at the time) played one of his favorite games, *Shindo Life* on *Roblox*. For the first prompt, the mission objective of the game was to defeat dawns or bandits, and my son was either to accept this task or decline and finish within a time limit. Before this, he had gone to view a map selection displayed on the screen to choose a playing arena.

Accepting the task, I watched with keen interest as he proceeded, playing and mustering diverse strategies to tackle the enemies. As he maneuvered swiftly to solve this challenge, he called on the other players to help him level up, and he was also reading through the chats to see what the players were discussing. He came across the Spanish word *cara* in the chatbox. So, he checked online to see its meaning. The word means *face* in English. I could not help but interrupt his gameplay as I spotted the Spanish word *toxico*. So, I asked him, “what does that word mean?” bearing in mind that the phrase could mean

something destructive just as its English cognate. To not assume, I looked up the word on Google and told him, "It means poison." He shrilled in exclamation with his eyes popping out, "Oh! There is poison power in the game!" Now, for him, that is a gamer moment.

The vast knowledge that learners gain from videogaming is helping them improve their literacy skills, i.e., the way they make sense of the world (Abrams, 2009; Gerber, 2008; Gee, 2007; Steinkuehler, 2010). Hence, they can make sense of their culture, life, and identity (Ronksley-Pavia & Barton, 2020). Moreover, to be fully literate in today's contemporary world, literacy and media literacy, though essential, are not adequate to capture the literacies and ingenuity emerging from videogaming (Zimmerman, 2013), especially with the influx of daily technology revolutionizing literacy practices among players.

Several studies have focused on the adverse effects of gaming due to inappropriate contents (Markey & Markey, 2010; Olson et al., 2007), attention deficit disorders (Anderson et al., 2010; Bioulac et al., 2008; Kietglaiwansiri & Chonchaiya, 2018; Sanford & Madill, 2007a, 2007b) aggression and violence of gameplay among players (Adachi et al., 2012; Anderson & Dill, 2000; Boxer et al., 2015; Ferguson et al., 2012; Gentile et al., 2004; Yang et al., 2014). Conversely, other studies have found the gaming platform to be an environment where players' prosocial (Harrington & O'Connell, 2016; Vieira, 2014) and developmental needs can be achieved (Durkin, 2006; Finke et al., 2018; Hayes, 2020; Lobel et al., 2017). In addition, videogames help players with autism spectrum disorder (ASD) in their executive functioning skills (Rosenthal et al., 2013) and also serve as a therapeutic modality for players (Griffiths, 2010; Staiano & Flynn, 2014; Lafleur et al., 2018). A report found that in surveying 4,626 young gamers'

literacy-related interactions, 59.6% of parents confirmed that communicating with friends and families through videogaming during the COVID-19 lockdown has helped their child's mental well-being (Picton & Clark, 2020).

Mackey (2007) noted that players engage in videogaming in a highly sophisticated manner, which links the games to enable them to understand literacy more than just print text alone. Mahmoodi-Shahrehabaki (2019) posited that videogames are currently applied in literacy learning to improve quality and increase literacy education productivity. Players take part in creating texts, visual and oral semiotic systems that enable them to interpret patterns and maps (Lebedeva, 2018). These systems further allow players to develop their online typing and communicate through reading and speaking. Different professions and careers require these technological skills to learn (Burton et al., 2015).

Interestingly, Siew et al. (2016) found that videogames could also improve algebra learning. The algebra language is an essential educational aspect as it promotes reasoning and problem-solving abilities. It also enhances one's capabilities in recognizing and analyzing patterns through representation with signs. Nonetheless, the high level of abstraction used in algebra makes it difficult for many students to learn through the language (Siew et al., 2016). However, videogames can make learning algebra easy even for those students who are not so good at mathematics. The instruction tools do so by delivering the learning materials to the student in a manner relevant to their needs and learning styles (Siew et al., 2016).

Also, the findings of the studies by Godwin-Jones (2014) and da Silva (2014) agreed with those of Mora et al. (2016) about the role of videogames in improving

language literacy. Godwin-Jones (2014) argued that gaming allows adolescents and young adults to engage with the realities of life and motivates them to learn new English terms whose meaning they need to understand to play. Godwin-Jones (2014) added that incorporating suitable videogames into language learning can enable educators to facilitate the mastery of the English language among their students.

On the other hand, da Silva (2014) linked videogames to learning informal English concepts. Such gaming develops a player's expressive and receptive literacies in the English language. Additionally, videogames have proven to enhance graduate competencies among students in institutions of higher learning (Barr, 2017).¹ A study conducted by Barr (2017) revealed that gaming is an essential approach to instilling these literacies in such learners. The research engaged a control group not subjected to gaming and another group allowed to game. The results indicated that the undergraduate students who played related videogames had better communication, adaptability, and resourcefulness competencies than their colleagues who did not (Barr, 2017).

Furthermore, videogames can correct different learning disabilities. For example, according to Franceschini et al. (2017), videogames, particularly those involving much action, can be used to improve reading literacies among players with dyslexia.² Active videogames improve the reading abilities of such learners by improving their word recognition and phonological decoding skills (Franceschini et al., 2017).³ Moreover, the

¹ Graduate competencies refer to the desirable abilities that students are expected to develop while in university and require later in the workplace to accomplish different tasks.

² Dyslexia is a condition that makes it difficult for the affected individuals to read and understand educational content.

³ Active videogames require physical activity beyond the passive game (e.g., conventional hand-held games). Active videogames depend on technology and involve body movement and reaction to the game.

games achieve the purpose by enhancing the visual-to-auditory attentional shifting and dedicated visuospatial responsiveness of learners with dyslexia (Franceschini et al., 2017).

The perceived potential of videogames and the unprecedented height it has reached for enriching learners' literacy and academic achievement has made it a significant research phenomenon for literacy scholars (Zeng et al., 2020). Thus, studies suggest that the literacy practices adopted by male videogamers are one of the phenomenon's dimensions worth investigating (Abrams, 2009; Engerman, 2016; Gerber, 2008; Lane, 2018; Sanford & Madill, 2007a; Schmitt & Livingston, 2015).

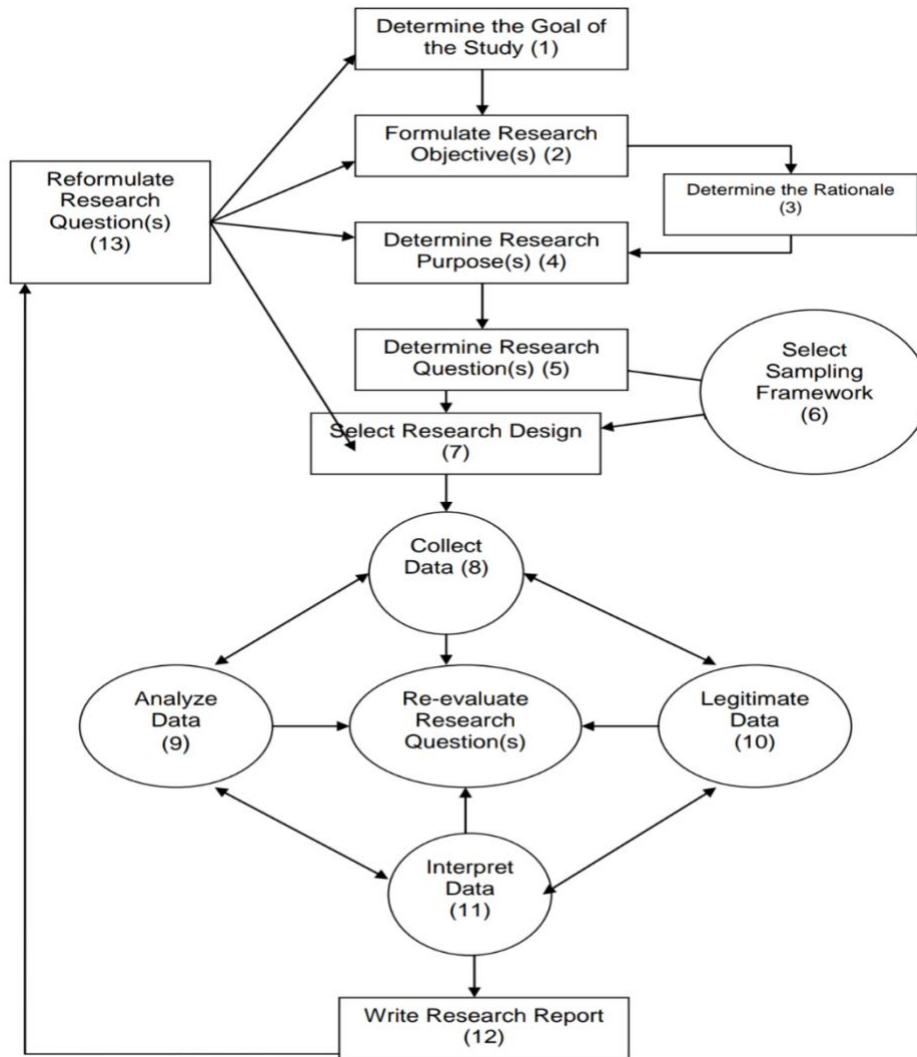
Methodological Framework

Building on Onwuegbuzie et al. (2012) to set aside preconceptions and assumptions, this research employed a 13-step qualitative research process. The methodological framework for the study included (i) Step 1: Determining the goal of the study (ii) Step 2: Formulating the research objectives (iii) Step 3: Determining the rationale of the study (iv) Step 4: Determining research purpose (v) Step 5: Determining research question(s) (vi) Step 6: Selecting sampling framework (vii) Step 7: Selecting research design (viii) Step 8: Collecting data (ix) Step 9: Analyzing data (x) Step 10: Validating/legitimizing data (xi) Step 11: Interpreting data (xii) Step 12: Writing the final report and (xiii) Step 13: Re-evaluating research question(s). These 13- methodological steps incorporate three crucial stages: (a) the research formulation stage, (b) the research planning phase, and (c) the research implementation stage (Onwuegbuzie et al., 2012). In Leech and Onwuegbuzie's (2010) model, steps 1-5 represent the research formulation stage, the research planning phase contains step 6 (sampling framework), step 7 includes

the research design, while the research implementation phase consists of steps 8, 9, 10, and 11: collecting data; analyzing data; legitimating data, and interpreting data. These steps are illustrated in Figure 1.

Figure 1

Qualitative Research Process Guiding the Study



Note. Adapted from Onwuegbuzie et al. (2012).

Background of the Study

Step 1: Determine the Goal of the Study

The first step was to determine the goal of the study, which was to explore a male's videogaming literacies within the Crayta community and culture within the Google Stadia platform.⁴⁵ In articulating the goal for a qualitative research study, Onwuegbuzie et al. (2012) suggested the following nine goals (a) add to the knowledge base, (b) predict, (c) measure change, (d) have a personal, social, institutional, and/or organizational impact, (e) understand complex phenomena, (f) generate new ideas, (g) inform constituencies, and (h) examine the past. Therefore, the goal of this study was to understand complex phenomena of literacy practices in videogaming.

Statement of the Problem

Step 2: Formulate the Research Objectives

The research goal led to the second step- the research objective. Videogames' popularity has brought debates among society members, such as the media consistently getting games wrong (Adam, 2014) and perceiving videogames as a cause of real-life violence, homicides, and crimes (American Psychological Association, 2015; The Amplifier Magazine, 2016; Suziedelyte, 2021), the reluctance of educators to inculcate videogames into the school curricular (Ray et al., 2015), as well as noting violent games and aggressive behaviors among players (Anderson et al., 2010; Ferguson & Kilburn, 2009; Shafer, 2012). However, researchers have shown that videogames do not necessarily predict players' violent crime and aggression (Decamp, 2015; Ferguson,

⁴ Stadia is a cloud gaming service developed and operated by Google.

⁵ Crayta is a sub-culture of the larger Stadia gaming community.

2010; Przybylski & Mishkin, 2016; Surette & Maze, 2015). Furthermore, a recent study revealed no evidence of a relationship between videogames and increased violence (Suziedelyte, 2021). Even violent videogames have tremendous and positive effects on players, including reduced stress and improved cognitive functions (Corriea, 2013).

Scholars have also revealed that videogaming improves literacy skills (Abrams, 2009; Apperley & Beavis, 2011; Barr, 2017; Barr, 2019; Bourgonjon, 2014; Camilleri et al., 2013; Gerber, 2008; Jerrett et al., 2017; Kronenberg, 2016; Reich, 2021; Steinkuehler & King, 2009; Scolari & Contreras-Espinosa, 2019; Steinkuehler, 2010; Terry & Malik, 2018). Therefore, individuals must understand how players acquire complex literacy skills from videogaming to help them advance beyond their operational levels to engage in more critical practices. Apart from this, findings showed that much research is still needed to contextualize videogames' ludic dimensions (i.e., the rule systems and mechanics that engage players in various gaming activities) to deepen understanding of literacies rooted in gaming (Bourgonjon, 2014).⁶ As a result, the objective of the study was to unveil the literacies entrenched in males aged 18 – 30's videogaming.

Philosophical Lens

Step 3: Determine the Rationale

The philosophical stance or research paradigm is a logical way of thinking that informs how a researcher interprets or unravels the underlying meaning of the phenomenon (Kivunja & Kuyini, 2017). Hence, this study's philosophical lens was rooted in Vygotsky's (1978) social constructivism. Social constructivism propounds that

⁶ The ludology versus narratology debate has been that ludologists emphasize game mechanics and discard the idea of analyzing games as narrative, while narratologists contend that games are intricately connected to stories.

learning is a collaborative process in social and cultural settings (Davis et al., 2017). Humans are active participants in creating their own knowledge (Schreiber & Valle, 2013). I employed the constructivist approach, which states that diverse realities can co-occur (Onwuegbuzie & Frels, 2016). Constructivism enables people to learn through their involvement with specific concepts and reflect on the related experiences (Harasim, 2017). Also, learners construct knowledge and view it as experience-based, suggesting a robust social interaction between learners. Thus, social constructivism is a flexible philosophical lens for understanding the literacy learning of videogame players through their social interactions.

I chose this philosophical lens for my research because learning interaction improves learners' involvement in a constructive activity (Alt, 2017). Furthermore, Hurst et al. (2013) found that social interaction among learners enhanced their learning and literacy skills and critical thinking. Therefore, I wanted to see how an environment where learners work together helps create a collaborative community of learners. Additionally, a social constructivist philosophical stance enabled me as a researcher to approach the study with a broad and general question that could be modified and refined throughout the research process (Creswell & Poth, 2018).

Purpose of the Study

Step 4: Determine the Research Purpose

This fourth phase entails stating the purpose of the study. This study aimed to uncover the literacy practices of a male gamer on Crayta within the larger Stadia culture. A study revealed that although men and women play videogames, men are more than twice as likely as women to identify as gamers (Duggan, 2015). In addition, a study

found that men in the United States spend 51 minutes on weekdays playing videogames, and women spend 29 minutes on weekdays doing the same activity (U.S. Bureau of Labor Statistics, 2019). Besides, a 2021 Statista survey in the United States showed that 38 % of videogamers still come from the 18 to 34 age demographic (Clement, 2021). Therefore, the study scrutinized how the sophistication of playing videogames, such as Crayta, enabled males aged 18 - 30 to engage in literacy practices found in gaming.

Marino et al. (2019) recommended that social interaction be encouraged among learners to help them develop emotional, social, and cognitive skills to relate well with peers and the community. Marino et al. (2019) further noted that people develop several ideas about themselves and their lives, especially when they are within an active growth phase. Therefore, videogaming is an essential literacy practice that can help players foster their literacy skills.

The purpose of the study was to explore and understand the literacy practices that males engage in within the Crayta community on the Stadia platform following the rapid use of videogaming among this demographic. Moreover, different studies ascertained that gaming fosters players' learning abilities (Alvermann, 2010; Contreras-Espinosa & Scolari, 2019; Mahmoodi-Shahrehabaki, 2019; Stuft, 2018). Hence, it is crucial to explore how videogaming community influences their literacy practices. In addition, the following factors further influence the justification for the study: (a) Scholarly works have not been conducted in the Stadia/Crayta community as the platform is relatively new and remains a gray area yet to be explored (b) to continue to add to the pre-existing knowledge and provide more insight to move the field forward, (c) to understand the complex phenomenon of literacy practices in videogaming (d) several studies have drawn

attention to the negative impacts of videogaming rather than looking at a bigger picture by also creating awareness on the merits that are present, and by so doing, creating a balance (Granic et al., 2014), and (e) Apperley and Beavis (2013) also suggested that the growth in the usage of the new media, especially among players should raise significant questions amidst researchers.

Research Questions

Step 5: Guiding Questions

Boellstorff et al. (2012) attested to the fact that ethnography is “one of the most open of research approaches, which adapts itself to the social situation it finds” (p. 53). As a result, ethnographers must be ready to modify questions based on what they discover in the field. Boellstorff et al. (2012) further stated that an ethnographer should focus on a question and be open to ‘the pressure of evidence’ as the research progresses. The research questions that guided the study were the following:

1. How do males aged 18-30 engage in literacy practices through play and game creation on Crayta within the *Stadia* videogaming community?
2. How do male gamers layer their literacies and employ the four components of the feedback loop while playing Crayta within the larger *Stadia* culture?
3. How do males practice their literacies through play and game creation on Crayta within the larger *Stadia* culture?

Theoretical Framework: Layered Literacies and the Feedback Loop

The study applied a hybrid theoretical framework of Abrams's (2014) layered literacies and the feedback loop (Abrams & Gerber, 2013) to understand males' gaming literacies within the Crayta/Stadia community. Abrams (2014) defined layered literacies

as the fluidity of texts and experiences occurring online, offline, and between these two spaces as learners navigate "their virtual and non-virtual worlds, skills, and knowledge sets" (p. 15). Multiple researchers proposed using the layered literacies theoretical framework to meet the rising need for understanding how players engage in communication through technological means (Abrams & Gerber, 2015; Abrams & Walsh, 2014; Garcia, 2020b; Shulsky et al., 2017). Since the creation of the layered literacies framework, multiple researchers have suggested that the layered literacies theory involves embracing learning as a fluid and multi-directional process that consists of combining independent and collaborative practices that are self-directed and based on the student's interests (Abrams, 2014; Abrams, 2017; Abrams & Gerber, 2021; Garcia, 2020b; Lucci et al., 2016). Layered literacies engage learners by allowing them to use different modes of learning, offering them the opportunity to create their rhythm of knowledge, both in the modern game ecology and as part of the classroom culture (Abrams, 2015; Abrams & Gerber, 2015). Literacies that are layered are inherent in digital technologies like videogames that use images, symbols, words, and in-text that manipulate the formats using fonts or margins to mean different things to readers. Layering literacy requires active participation, ideation, and interpretation for learners to comprehend digital and non-digital literacies. For example, videogaming uses progressive instructions for the player to move from one level to the next, and they have to interpret the symbols, images, sounds, or gestures.

Additionally, within videogaming experiences, applying a layered literacies frame involves using multiple and diverse instructions for authentic meaning-making that learners can relate to the real world (Abrams & Gerber, 2015). For instance, role-playing

games offer platforms for players to engage in working with multimodal resources that allow them to learn collective understanding, writing, reading, and communication skills as they interact with other players in gaming sessions. Niemeyer and Gerber (2015) provided this evidence in their study of *Minecraft* YouTube content creators. Garcia (2020a) found similar experiences accurate; in his 26-month ethnographic study of the tabletop role-playing game, *Dungeons & Dragons*, he found that such skills or literacies spread across three different domains. The skills, *in the game* (e.g., players reading magic scrolls and books), *at the table* (e.g., teaching new players, engaging in dialogue and role-play), and *beyond the table* (e.g., painting, podcasting, mapmaking, and others) were learned because the tabletop games were embedded with literacy practices that facilitated educational growth.

Other studies found that layered literacy models help advance students' identity, grow their skills and intellect, and ensure they are intellectuals (Abrams, 2015; Gholnecsar, 2018). In addition, layered literacies can also occur in formal educational environments, not just informal learning environments. Layered literacies enable students to advance critical thinking by encouraging them to develop their understanding of texts and recreate notions from books creatively (Lucci et al., 2016). Lucci et al. (2016) found that most players prefer game-based learning as it easily captures and retains their attention and is interactive, unlike paper-based texts. Through the videogame *Minecraft*, the learners could boost their world-building skills and collaborate to recreate scenes from the texts they had read for class (Lucci et al., 2016). Literacy research offers novel ways to understand and revision students' literacies found in videogaming (Alexander, 2009).

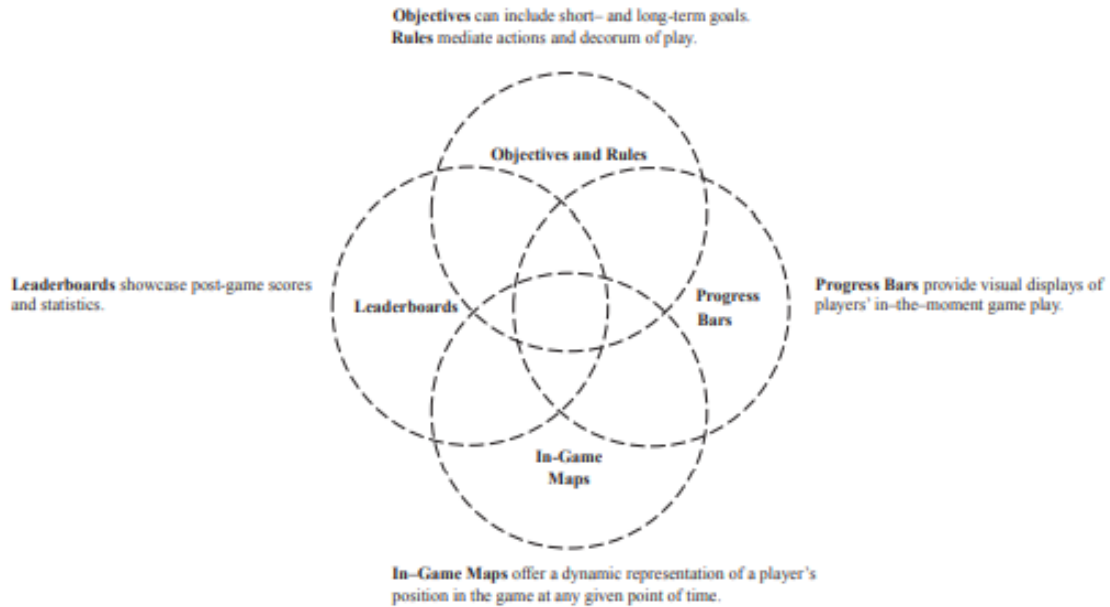
In furthering my framework for the study, I explored the concept of Abrams and Gerber's (2013, 2021) feedback loop to unpack how players make meaning in a videogaming space. Gerber and Abrams (2018) described feedback loop as the meaningful experiences that players bring individually or collectively to bear in game plays (i.e., in-the-moment experiences, prior knowledge, on-and off-screen feedback, and others) iteratively influenced by game mechanics and narratives. These practices are iterative, reflexive, and interest-driven, and players are bound to learn via trial and error, which is critical to their success (Abrams & Gerber, 2013, 2021; Gerber & Abrams, 2018). Akbar et al.'s (2017) perception of feedback loop is similar to that of Abrams and Gerber (2013, 2021). Akbar et al. (2017) defined the term as the "recursive and iterative cycles of interactions originating from the individual and collective contributions over time. They play an important role in improving and refining innovations, and in learning, reflection, and articulating new knowledge (pp. 447-448)." While Akbar et al. (2017) focused on the dynamic processes of organizational knowledge creation, Abrams and Gerber (2013, 2021) and Gerber and Abrams (2018) emphasized that players are a critical part of the learning process in the context of videogaming. Gerber and Abrams (2018) stressed that this feedback process engages players' interest, boosts their critical thinking, affords collaboration with peers, and supports advances in game play.

Abrams and Gerber's Feedback Loop Model

According to Abrams and Gerber (2021), the feedback loop comprises an iterative system of four main aspects within and around the game that provides players essential information on how to navigate game play via (i) Objectives and rules (e.g., how and why the game is played) (ii) Progress bars, or real-time info about progress (iii) In-game maps,

or visuals of a player's, and sometimes other opponents' or team members' in-game locations (iv) Leaderboards (e.g., after-game scoreboards). Even though each attribute has its own goal, they depend on each other for players to make something worthwhile of their gaming or learning experience. Succeeding at any game requires players' response to each of these four aspects individually and as a whole (Abrams & Gerber, 2013; Abrams & Gerber, 2021; Gerber & Abrams, 2018). Abrams and Gerber (2021) held that players do not just play videogames but interact with other items related to gaming. The authors contended that learning through the feedback loop often requires players to move across spaces, texts, and interactions with other players, spectators, and others (Abrams & Gerber, 2021). This way, gamers can layer their literacies across various texts, games, books (e.g., user guides in walkthroughs on tips and ideas to navigate the games), non-verbal communications, and others. For example, Ethan first read on-screen texts, images, and symbols. Next, he had to combine his prior knowledge of the game and science to make informed decisions. Then, he used the information he received from his fellow player, Armond, to navigate his way through the game *Faster Than Light* (Abrams & Gerber, 2021).

Abrams and Gerber's (2013, 2021) model is essential for this study because the feedback loop offers a crucial understanding of the intricacies of the gaming system and how players make meaning of literacies during game play. Figure 2 illustrates the four components of the feedback loop.

Figure 2*The Feedback Loop Components*

Note. The perforated and bi-directional arrows depict interconnectedness and inter-reliance upon all components. Adapted from Abrams and Gerber (2021).

Objectives and Rules. Objectives and rules highlight the ‘whys’ and ‘hows’ of the play, and both of these apply to digital and non-digital games (Gerber & Abrams, 2018). Gerber and Abrams (2018) ascertained that the objectives could include the players’ immediate and overall goals, while rules illustrate achieving those goals. Objectives and rules are enforced by the game or space where an individual player is playing or collectively as a group (Abrams & Gerber, 2021). Examples of these rules include but are not limited to acceptable moves and those that are not accepted, time limits, turn-taking procedures, and ways to acquire points and brace up for a more challenging task. Abrams and Gerber (2021) recounted how several players negotiated *Minecraft*’s creative mode to build water slides and castles and pre-knowledge to build a

structure out of the ordinary to achieve self-determined objectives. For example, Kimmy utilized the game's rule system to design a legitimate pool even though the pool would not hold water in the real world (door on the side of the pool). In contrast, Anita enforced her own rules to "regulate others' behavior, protect her work, and help her maintain ownership of a *Minecraft* space she valued" (p. 66).

Progress Bars. Progress bars include in-the-moment actions and visual displays of players' progress or status throughout gaming (Abrams & Gerber, 2021). Instances of these in-the-moment actions might consist of players' score; task-based accomplishments; time, opportunities, or turns remaining, negotiating turn-taking, abilities, powers, degree of strengths, engaging in non-game related small talk, game-related banter, the types of ammunition or moves available, the number of lives remaining, and others (Abrams & Gerber, 2013, 2021). Gerber and Abrams (2018) gave an example of the health bar in *Band Hero* – a series of music rhythm games where players get to mimic a rhythm, a game that can gauge how many chords and notes a player can match. As the game's objectives hit the target, the more the bar indicator shifts to the right, and the more the objectives are missed, the more the bar indicator shifts to the left (Gerber & Abrams, 2018).

In Game-Maps. In-game maps help players know where they are located per time in the game regarding the game missions and others (i.e., teammates and opponents) (Abrams & Gerber, 2013, 2021). According to Abrams and Gerber (2021), in-game maps can take many forms but are not limited to spaces such as a "racing track, an outdoor field, a room in a building, and a corridor in a maze" (p. 28). Through the location of players and the real-time information about in-game locations, players can reflect on their

moves and re-strategize as much as possible (e.g., when to take a break). Players can also use the information to achieve their short and long-term goals (Abrams & Gerber, 2013, 2021; Gerber & Abrams, 2018). For example, when a gamer seemed lost while playing *Super Smash Bros*, another player's feedback helped her get back into the game quickly (Abrams & Gerber, 2021).

Leaderboards. Leaderboards show a public display of players' rank and provide post-game information, including the player with the highest score and their counterparts' scores and other statistics. This information allows players to reflect on the necessary changes they need to make in future competitions to boost their morale (Abrams & Gerber, 2013, 2021; Gerber & Abrams, 2018). For instance, esports leaderboards prompted ten collegiate Esports players to engage in all four elements of the feedback loop to reflect throughout their game play (Abrams & Gerber, 2021). In the example that Abrams and Gerber (2021) provided, two gamers, Elizabeth and Javier, used the information from the leaderboard to help enhance Elizabeth's positioning while competing in the *League of Legends* mock competition.

Significance of the Study

The study is significant in education because understanding the influence of videogaming on literacy practices and skills will enable educators and learning institutions to model good learning experiences around it. Additionally, there is increasing interest in understanding the positive effects of videogaming among players (Gee et al., 2017), even though some scholars, such as Brunborg et al. (2014), linked videogaming to depression, violence, addiction, substance, and poor academic achievements. However, the study by Granic et al. (2014) contended that videogaming

has cognitive, emotional, motivational, and social benefits. Therefore, exploring the positive effects of gaming will motivate educators to provide a conducive gaming environment for learners to improve their literacy practices and prepare to apply them in the real world.

Also, research suggests that some education stakeholders are oblivious to the positive impact of videogaming on student learning (Jiow et al., 2018). Hence, they need to know that it promotes literacy practices (Mahmoodi-Shahrehabaki, 2019). These practices enable players or learners to advance beyond their operational levels to engage in more critical practices (Granic et al., 2014).

Apperley and Walsh (2012) described digital paratexts' role and noted that teaching students how to read, write, and design them improves literacy practices, while Gerber and Price (2011) mainly discussed the role videogame paratexts play in learning expository, persuasive, and creative writing skills. Additionally, videogames significantly improve players' communication and social literacies (Nawahdah & Ihmouda, 2019). Thus, Apperley and Walsh (2012) suggested that they should be included in the curriculum to enable educators to capitalize on the student's ability within and out-of-school. Thus, it was hoped that the current study would be a critical boost to research towards understanding the literacy practices among male gamers on Crayta within the larger Stadia culture.

Furthermore, the primary stakeholders, including students, educators, and policymakers, require more information to put specific measures to take advantage of the benefits of gaming. For example, policy experts may need to understand how videogames promote literacy to create an appropriate legal framework to guide the implementation of

the teaching strategy. Educators may also need to thoroughly understand videogames and evaluate their relevance to specific educational activities before integrating them into the learning process (Kronenberg, 2016).

The study is not necessarily about bringing videogames physically into the classroom but about establishing an understanding for educators to work towards creating similar conditions in their teaching space. Hence, they may find the research helpful. Hopefully, it will provide them with vital details that may help them understand the potential of videogames in facilitating learning and improving student literacy. Besides, teachers may rely on the study's findings to establish how best to incorporate videogames into their curricula.

Delimitations

Delimitation defines the study's boundaries and aspects that the study will or not cover (Simon & Goes, 2013). In short, a study's delimitations are controlled and governed by the researcher. This study aimed to explore and understand the literacy practices male players engage in within the *Stadia* culture. The study population was male gamers between the ages of 18-30, and this age falls into the group that Ingraham (2017) revealed that are spending more time playing videogames. According to the writer, the number of players aged fifteen and older playing videogames shot up to over 11% more than in previous years (Ingraham, 2017). In addition, the Des Moines Register (2018) reported that males aged 21 to 30 increased their leisure hours and spent more time playing videogames. Finally, these demographics were chosen because research suggests that males highly engage in videogaming more than their female counterparts

(Cummings & Vandewater, 2007; Duggan, 2015; Nuyens et al., 2019; Statista Research Department, 2021).

Limitations

Ross and Zaidi (2019) noted, “study limitations represent weaknesses within a research design that may influence outcomes and conclusions of the research” (p. 261). Simon and Goes (2013) affirmed that limitations are events beyond the researcher's control, and every study has limitations no matter how well it is done. Potential limitations for the study included (i) Studying a particular phenomenon, leading to a criticism of lack of generalizability to a broader population (ii) Time-consuming (iii) Observation and vast sites of observations that could make conclusion difficult (iv) Limited access to participants (v) Researcher’s bias that could impact an accurate portrayal of the culture.

Definition of Terms

Action Videogames

Action videogames require rapid action and quick reflexes to overcome obstacles (Fritts, 2013). E.g., *Grand Theft Auto*.

Attention Deficit Hyperactivity Disorder (ADHD)

According to Wilens and Spencer (2010), ADHD is one of the most common neurobehavioral disorders in children and adolescents, including mood, anxiety, disruption, and substance use.

Dorsal System

The dorsal system recognizes where objects are in place and guides and analyzes movement (Two-streams hypothesis, 2021).

Fighting Videogames

Fighting videogames are videogame in which one player battles another (i.e., *Super Smash Bros*) (Gose, 2014).

First-Person Shooter

First-person shooter videogame centers on weapon-based combat from a first-person perspective (Gose, 2014). E.g., *Call of Duty*.

Gameplay

Gameplay means all the activities and tactics game developers use to get and keep players engaged and motivated throughout an entire game (Prensky, 2002).

Massive Multiplayer Online-Role Playing Games (MMORPGs)

Massively multiplayer online role-playing games are a genre of role-playing videogames that multiple players can play simultaneously on the same game (Daniel & Daniel, 2012).

Multimodal

Multimodal refers to a combination of modes (i.e., visual, linguistic, audio, gestural, spatial, and others) to send information (Olthouse, 2013).

Multi-user Environment

Multi-user virtual environments are digital environments that allow multiple users to do, but not limited to the following (a) access virtual contexts, (b) interact with digital artifacts, (c) and relate with other players through the use of avatars (Dieterle & Clarke, in press).

Paratext

According to Genette & Maclean (1991), paratext enables a text to become a book and be offered to its readers or in a general term, the public.

Peripheral Vision

Peripheral vision means side vision. It allows an individual to see objects and movement outside of the direct line of vision.

Puzzle Videogames

Puzzle videogames are a casual game genre that emphasizes puzzle-solving (Gose, 2014). For instance, *Solitaire*.

Real-Time Strategy Videogames

Real-time strategy games use real-time play and focus on resource and building management. For instance, city building, troop building, and war management (Fritts, 2013; Gose, 2014). Example: *Age of Empires*.

Role-Playing Videogames

In role-playing games, players take on the role of a hero or character who participates in an intense adventure. An example includes *Final Fantasy* (Gose, 2014).

Semiotic

Semiotic examines the relationship between signs and how people understand and express the sign's meaning (Allen, 2017).

Third-Person Shooter

The third-person shooter videogame is when a player views his or her character from an external perspective rather than through the main character's eyes (Stegner, 2020). Examples include *Assassin's Creed* and *Fortnite: Battle Royale*.

Visual-Spatial

Visual-spatial refers to evaluating and assessing visual information and details and applying the knowledge to manipulate visual information (Heimbauer, n.d).

Walkthroughs

Walkthroughs in videogames serve as a guide to enhance a gamer's experience within a specific videogame. Walkthroughs can also be in the form of a playthrough in which gamers record themselves through a game and upload, or live-stream such (Video game walkthrough, 2021).

Organization of the Study

The study is organized into seven chapters. In Chapter I, I have provided the background to the study, the introduction, the problem statement, and the theoretical framework. I explained the goal of my study (step 1), my research objective (step 2), my rationale for the study (step 3), the purpose of my study (step 4), and the research questions (step 5) guiding the study. Furthermore, in the section, I have presented the significance of the study, definition of key terms, delimitations, and limitations.

In Chapter II, I will include the expansion of determining the goal of the study (step 1), formulating research objectives (step 2), determining the rationale of the study (step 3), and determining the purpose of the study (step 4). Hence, there is a literature review, where past research is examined to establish scholars' work in understanding the study. Next, I will discuss the methodology together with the selection of sampling framework (step 6), selection of research design (step 7), and the data collection procedures (step 8) in Chapter III.

In Chapter IV, I will describe the methodological procedures in the context of the study to account for contextual and situational changes that occurred *in situ* based on ten mitigating factors found in qualitative research (Gerber, 2019). Then in Chapter V, I will offer a detailed account of the culture as experienced by my participant. After which, I will focus on the data presentation and analysis (step 9) of the results in Chapter VI. Finally, in Chapter VII, I will outline the summary, discussions, implications, conclusion, and recommendations for further research. This chapter will also include these steps: (i) Step 10- Interpret data, (ii) Step 11- Legitimate data, (iii) Step 12- Write a qualitative research report, and (iv) Step 13- Re-evaluate research questions.

Summary

In this chapter, I have presented the research formulation phase via steps 1- 5. Step 1 described the goal of the study, step 2 examined the research objectives, step 3 reiterated the rationale of the study, step 4 explained the purpose of the study, and step 5 included the research questions. Contained also are definitions of key terms, the study's significance, theoretical framework, delimitations, and limitations. Included also are definitions of key terms, the study's significance, theoretical framework, delimitations, and limitations. The next chapter addresses literature relevant to the study. The literature review process is explained in detail, and various topics are examined to establish authors' works in understanding the study.

CHAPTER II

Review of Literature

Chapter Overview

The literature review is significant as it relates a study with relevant studies from the past while considering the purpose and objectives of the research. The purpose of the study was to investigate the literacy practices embedded in males' videogaming. The chapter provides a review of the literature to understand the topic better. First, I will be using the Comprehensive Literature Review (CLR) method suggested by Onwuegbuzie and Frels (2016) to generate a literature report based on the study concepts and existing literature. Next, I will outline the seven steps to the comprehensive literature review (Onwuegbuzie & Frels, 2016) and provide a detailed audit trail of the literature and resources, including the selection and deselection criteria used for the literature and resources that I have selected for inclusion in my literature review. After which, I will talk about the study's theoretical and conceptual framework. Then, I will provide a brief historical perspective of literacy as chronicled by literacy scholars such as Gee (2007), Smith (2002), Manguel (1996), Boyarin (1993), De Looze (2016), Johnston (2016), Boeckeler (2017), and Barton (2017). Following the historical overview, I will discuss the themes that emerged from my comprehensive literature review, which are (a) Literacy, (b) Game-based learning, (c) Cognitive Skills in Videogaming, (d) Social Skills in Videogaming, (e) Academic Performance and Future Careers, (f) Collaborations (g) Affinity Spaces and sub-themes, such as a brief history of literacy, multiliteracies, literacy practices, videogaming and literacy, adolescents and gaming practices, and others. A summary of the discussion will conclude this chapter.

Literature Review Process

I undertook a comprehensive literature review of existing relevant literature to understand the phenomenon. According to Onwuegbuzie and Frels (2016), a comprehensive literature review refers to an understandable and thorough integration of specific literature review methods to avoid outcome bias. Onwuegbuzie and Frels (2016) posited that a comprehensive literature review (CLR) should not only establish a research topic but should also incorporate selection and deselection criteria and specify appropriate Boolean operators for expanding the search as well as the incorporation of contemporary sources of media, which they term MODES (Media, Observation, Documents, Experts, and Secondary Data). I employed Onwuegbuzie and Frels' (2016) seven-step framework for conducting a literature review to ensure transparency, observe ethics, and produce an inclusive literature review.

The multimodal and cultural approach promoted by Onwuegbuzie and Frels (2016) enabled me to focus on multimodal settings and texts, i.e., the Media, Observation, Documents, Experts in the field of interest, and Secondary data sources (MODES). The recommended process and framework involve seven steps undergirded by the CORE principle (Critical thinking, Organization, Reflections, and Evaluation) of the literature review. As Onwuegbuzie and Frels (2016) proposed, when used, the seven steps ensure a researcher achieves rigor, reliability, and validity in their literature reviews. The seven steps include: (i) "Exploring Beliefs and Topics," (ii) "Initiating the Search," (iii) "Storing and organizing the information," (iv) "Selecting and deselecting information," (v) "Expanding the searches," (vi) "Synthesizing Information," and (vii)

"Writing the Comprehensive literature review report (Onwuegbuzie and Frels, p. 54, 2016)."

The Seven-Step of the Comprehensive Literature Review

Step 1: Exploring Beliefs and Topics. The literature review was completed for the selected topic of interest, focusing on males' literacy practices in videogames. By answering what meaning-making experiences male gamers develop through gaming, I can shift from a broad subject and narrow it further as the study progresses. Onwuegbuzie and Frels (2016) noted that a researcher's interpretation or perspective is a worldview that can cause bias in the process, and these biases should be made transparent. I was conscious of the possible biases that might arise from previous knowledge and intentionally ensured transparency of the process. For instance, the mindset that videogames are violent and have little or nothing to do with learning and that videogames have complicated literacy practices.

Step 2: Initiating the Search. I explored the following research questions to initiate the search: (i) How do males aged 18-30 engage in literacy practices through play and game creation on Crayta within the *Stadia* videogaming community? (ii) How do male gamers layer their literacies and employ the four components of the feedback loop while playing Crayta within the larger *Stadia* culture? (iii) How do males practice their literacies through play and game creation on Crayta within the larger *Stadia* culture?

I started the search by identifying databases to source information and narrowing down the information sources available in the following databases. While I explored the Google Scholar and Microsoft Academic Search (International Journal of Organizational and Collective Intelligence) databases for the audit trail, the other databases I searched

through Sam Houston State University's Newton Gresham Library included: Academic Search Complete, APA PsycArticles, APA PsycInfo, Educational Resource Information Center (ERIC), Education Source, Information Science and Technology Abstracts (ISTA), and ProQuest Dissertations and Theses Global (Dissertations and Theses Full Text). Onwuegbuzie and Frels (2016) recommended using Krejcie and Morgan's (1970) sampling theory in order to determine the sample size needed to obtain a representative number of abstracts for initial selection and deselection processes in the literature review (p. 102). Sampling theory means scanning, gathering, evaluating, or simplifying the data acquired from a sub-set of the population under study (Onwuegbuzie & Frels, 2016). Thus, I applied the sampling theory in the tables below. In this context, the hits represent the number of journal articles, books, book chapters, dissertations, digitized books, and other materials that I found via my search. The required sample from the initial hits exemplifies the minimum number of abstracts to be read to attain a representative understanding of the literature. Table 1 shows my search results across the different databases on the next page.

Table 1*Information Databases Used for Literature Review*

Database	Hits	Required Sample
Academic Search Complete	67	58
APA PsycArticles	18	18
APA PsycInfo	6	6
Education Source	215	139
Educational Resource Information Center (ERIC)	153	110
Information Science & Technology Abstracts	7	7
ProQuest Dissertations & Theses Global	11	11
Google Scholar	9	9
Microsoft Academic	10	10
Computer Source	4	4
Total	500	372

The keywords used for the initial search include a combination of terms for expanding or narrowing the search, using Boolean operators (i.e., "OR" and "AND"). The Boolean connector "AND" is employed to combine two or more keywords as a phrase and "OR" while setting a broader range of keywords by including any of the key terms.

This expands the search rather than narrowing them (Roberts & Hyatt, 2018; Pajo, 2018).

Table 2 represents the Boolean connectors and keywords used for the search.

Table 2

Keywords/Descriptors Used for Search Query Across Databases

Boolean/Phrases	Hits	Required Sample Size
“Videogames” AND “Adolescents” (in abstract)	67	58
“Video games” AND “Adolescents” (in abstract)	215	139
“Video games” AND “Adolescents” AND “Literacy (in abstract)	18	18
“Video games” AND “Adolescents” AND “Literacies” (in abstract)	6	6
“Videogames” AND “Adolescents” OR “Youth” OR “Boys” OR “Young” (in abstract)	7	7
“Videogames” OR “Digital games” AND “Literacy” (in abstract)	153	110
“History of Literacy” OR “Origin of Literacy”	9	9
“YouTube” AND “Creators” OR “Inventors” OR “Developers” OR “Makers” AND “Videogames” (in abstract)	11	11
“Gaming Community”	10	10
“Video Games” AND “Ethnography”	4	4
Total Number of Hits Across databases	500	372

(continued)

Boolean/Phrases	Hits	Required Sample Size
Total Number of Hits Across Databases After Removal of Duplicates	331	

After removing duplicates across databases, the search result was reduced to 331 articles. Based on the sampling theory, to achieve a representative number for 331 articles, I would need to read 179 abstracts across all searches. Onwuegbuzie and Frels (2016) revealed that abstracts are viable means for a reviewer to garner information relevant to the topic under study. So, I decided to scrutinize all abstracts of the 179 articles before my selection/deselection of articles that I would read in their entirety. It is worth noting that the selection/deselection process is necessary to narrow the scope of the study from a general and broad perspective to more specific research that would shape the literature review and generate the themes and additional keywords that will focus the search (Onwuegbuzie & Frels, 2016).

Additionally, in order to reach saturation and variation, Guest et al. (2006) emphasized that in developing selection and deselection criteria, a review of 12 documents in their entirety is necessary to draw themes, especially when the goal is to understand common perceptions and experiences of a relatively homogeneous group. Consequently, reading at least six articles in its entirety would suffice to gain relevant insights into the topic for me to begin contextualizing the information gathered to generate preliminary themes (Onwuegbuzie & Frels, 2016). Thus, I would need to read at least six entire articles of the 179 articles to provide adequate context for developing selection and deselection criteria before moving on to the selection and deselection phase.

Reading six articles in its entirety allowed me to create robust selection and deselection criteria to apply to my corpus of the 179 abstracts. I selected the six articles because the articles were the most pertinent to my topic.

Step 3: Storing and Organizing the Information. Onwuegbuzie and Frels (2016) posited that storing and organizing information ensures ease in accessing data used, avoiding plagiarism, and leaving an audit trail to keep track of the process. Therefore, I utilized Google Sheets to document the work (including books, book chapters, articles, and others.), the author(s), the year of publication, the research type/method, citation, abstracts, and others. I also created hyperlinks to an existing file to keep a tab on each work selected from the CLR search. Additionally, I extracted the entire article abstracts into the Google Sheets created. This process allowed me to later highlight and sort each article into groups: green for selected articles, red for deselected articles, and orange for later added articles (based upon mining the reference lists and or recommended by others). Figure 3 shows a screenshot of partial information stored in Google Sheets.

Figure 3

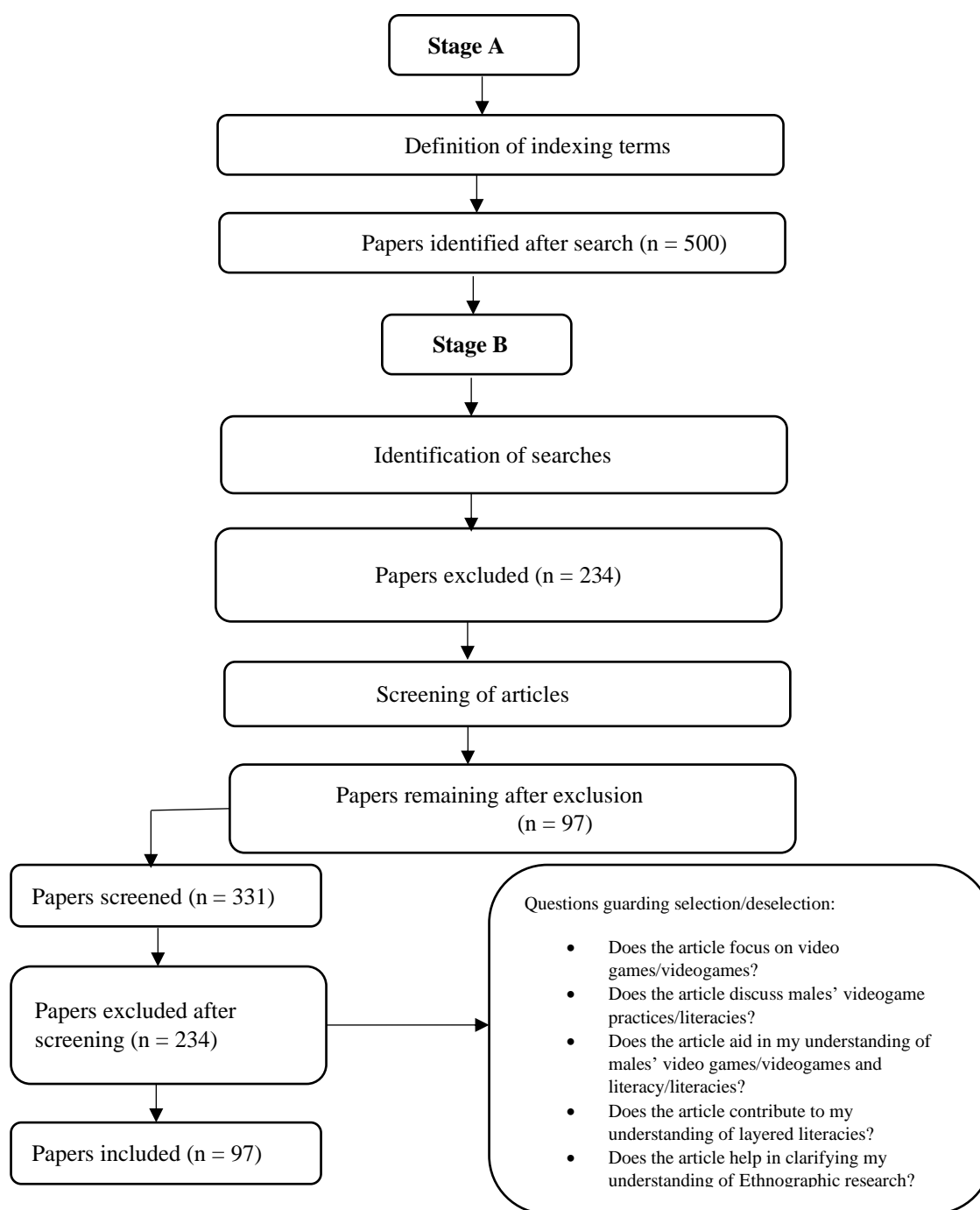
A Google Sheet Archiving Articles, Authors and Year of Publication, and Hyperlink

	A	B	C
1	Article	Author and Year of Publication	Hyperlink
2	2	Garcia Custódio, Iazana; Ferreira Hino,	https://www.ncbi.nlm.nih.gov.ezproxy.shsu.edu/pmc/articles/PMC6821487/
3	3	Gómez-Gonzalvo, Fernando; Devis-Devi	Video game usage time in adolescents' academic performance
4	4	Ponce-Blandón, José Antonio; Espejel-H	https://doi.org/10.1371/journal.pone.0235327.t002
5	5	Staiano, Amanda E.; Abraham, Anisha A	https://web-b-ebsscohost-com.ezproxy.shsu.edu/ehost/pdfviewer/pdfviewer?vid-
6	6	Lucci, Erica Holan; Abrams, Sandra Sch	http://www.alan-ya.org/wp-content/uploads/2016/03/k70-76-ALAN-Win15162.p
7	7	Barnett, Mark A.; Vitaglione, Guy D.; Hai	https://onlinelibrary-wiley-com.ezproxy.shsu.edu/doi/epdf/10.1111/j.1559-1816.1
8	8	Pelegrini, A.; Klen, J. A.; Costa, A. M.; B	https://link-springer-com.ezproxy.shsu.edu/article/10.1007/s00198-020-05412-1
9	9	Hashem, Rawan; Rey-López, Juan Pabli	https://bmcrsnotes.biomedcentral.com/articles/10.1186/s13104-019-4626-0
10	10	Peiró-Velert, Carmen; Valencia-Peris, Ali	https://web-b-ebsscohost-com.ezproxy.shsu.edu/ehost/pdfviewer/pdfviewer?vid-
11	11	Curwood, Jen Scott; Magnified, Alecia M	https://ila.onlinelibrary.wiley.com/doi/full/10.1002/jaal.192
12	12	Gerber, Hannah R et. al	https://web-a-ebsscohost-com.ezproxy.shsu.edu/ehost/pdfviewer/pdfviewer?vid-
13	13	Segev, Aviv	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0181209
14	14	Garcia-Continente,	https://web-b-ebsscohost-com.ezproxy.shsu.edu/ehost/pdfviewer/pdfviewer?vid-

Step 4: Selecting and Deselecting Information. The selection and deselection procedure resulted in eliminating 234 articles and the inclusion of 97 article abstracts to read in full for my literature review based on some guidelines. The following questions were developed from my initial review of the six articles as described prior. The article was selected for inclusion in the literature review if I answered yes. If I answered no, the article was deselected but kept for potential use later in the process. I used the following guiding questions to determine if an article was selected or deselected:

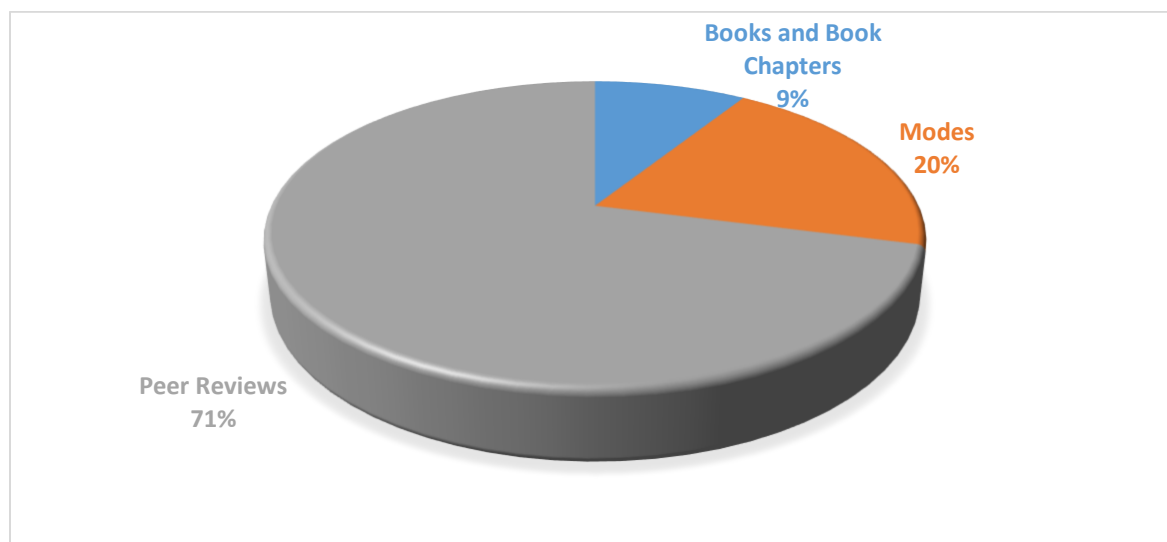
- Does the article focus on video games/videogames? (Topic)
- Does the article discuss males' videogaming practices/literacies? (Topic)
- Does the article aid my understanding of males' videogames/videogames and literacy/literacies? (Topic)
- Does the article help in clarifying my understanding of Ethnographic research? (Research Method).
- Does the article contribute to my understanding of layered literacies? (Theoretical Framework).

I considered other criteria that the articles were reliable sources, and credibility was ensured by checking the researchers' credentials and affiliations. Figure 4 depicts the selection/deselection process on the next page.

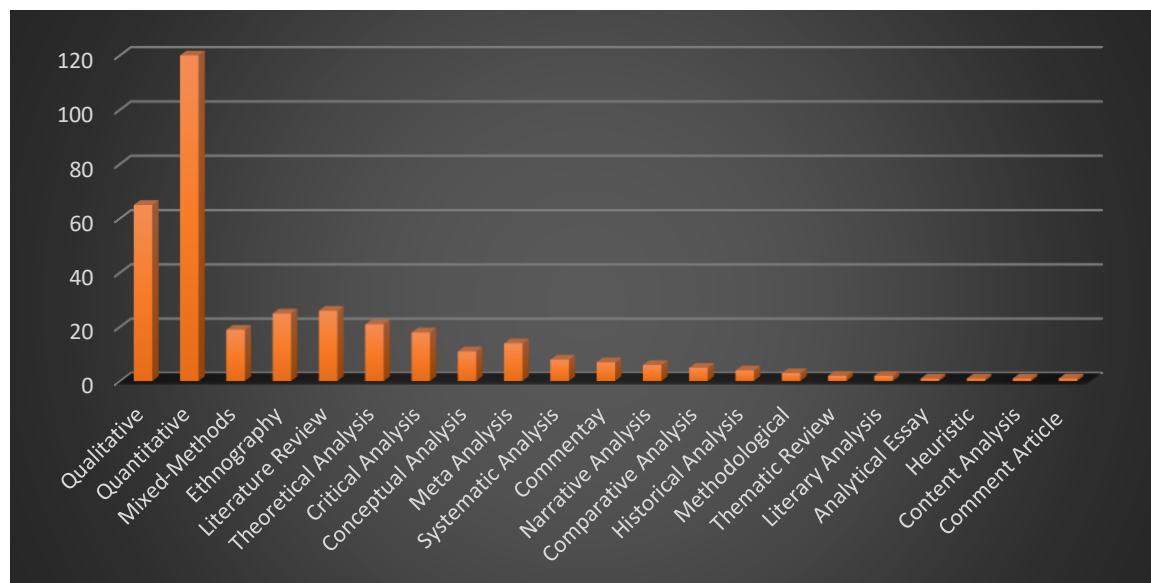
Figure 4*Article Selection and Deselection Process*

Note. The image depicts the procedures involved in adding and eliminating articles.

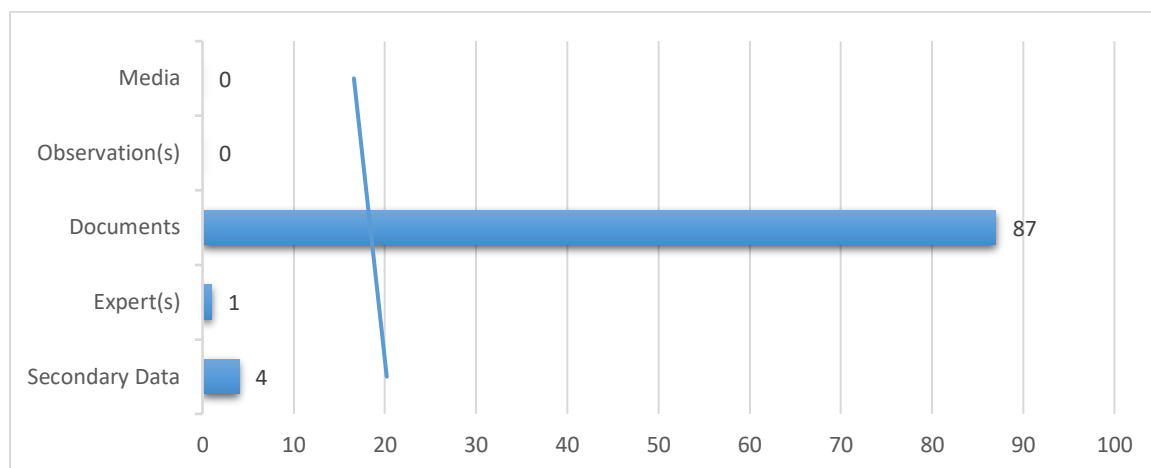
I added more articles and books as I examined and sorted the literature. In addition, I utilized some of the materials that I had gathered during my doctoral classes, and I also had some recommended to me by others. As a result, I added 366 peer-reviewed journals, books, and book chapters to my collection. These were selected based on relevance to the sources' topic, precision, quality, and credibility. Incorporated into the final comprehensive literature review are 325 qualitative studies, quantitative studies, mixed-methods, ethnographies, literature reviews, narrative analysis, theoretical analysis, critical analysis, literary analysis, heuristic study, conceptual analysis, historical analysis, content analysis, commentary, comment article, meta-analysis, comparative analysis, analytic review, methodological analysis, systematic analysis, and thematic review. I also added thirty-nine books and book chapters (both printed and digital). Figure 5 demonstrates my literature review structure by source types: 325 peer-reviewed articles, 41 topic-related books and book chapters, and 92 MODES (Media, Observation, Documents, Experts, and Secondary Data). Figure 6 reveals peer-reviewed journals spread across 21 different research categories for my literature review. Figures 7 and 8 display the Media, Observations Document, Observation, Experts, and Secondary Data (MODES) included in my literature review by category and type.

Figure 5*Structure of Literature Review by Source Types*

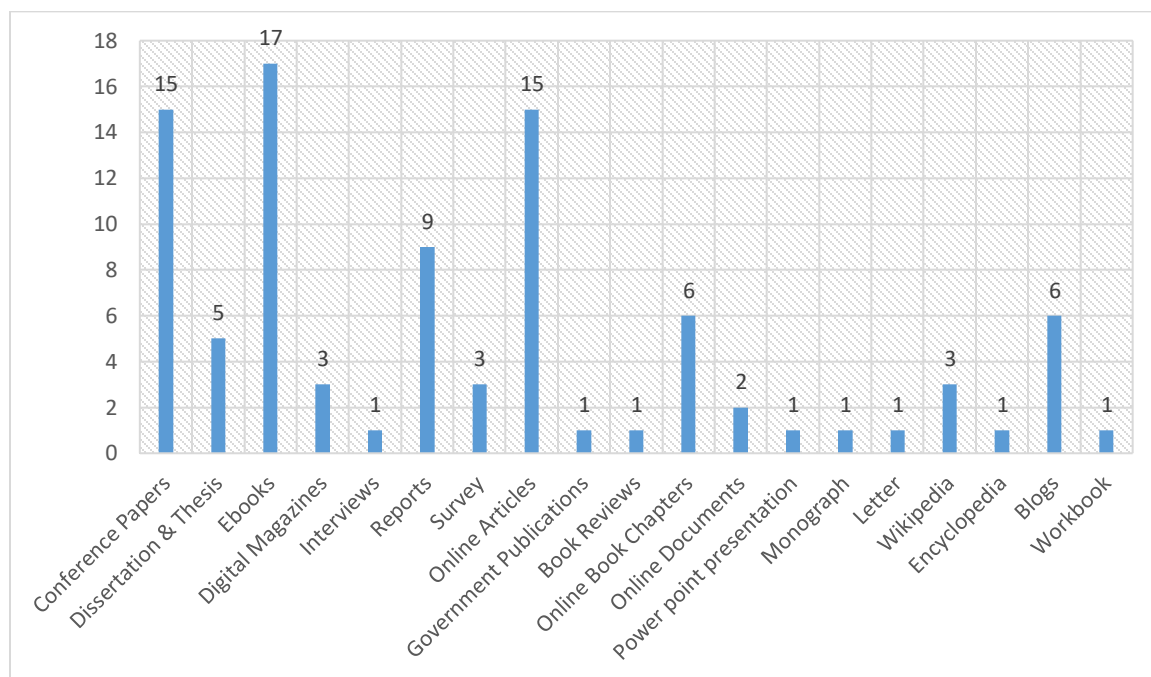
Note. This figure portrays the structure of my literature review by sources.

Figure 6*Peer Reviewed Journals by Type*

Note. The figure illustrates the peer-reviewed journals by type of research. A total of 325 peer-reviewed journals spread across 21 research categories were included in my literature review.

Figure 7*MODES by Category*

Note. This figure represents the categories of MODES included in my literature review. A total of 92 MODES were incorporated into my literature review and sorted into categories according to Onwuegbuzie and Frels' (2016) guidelines.

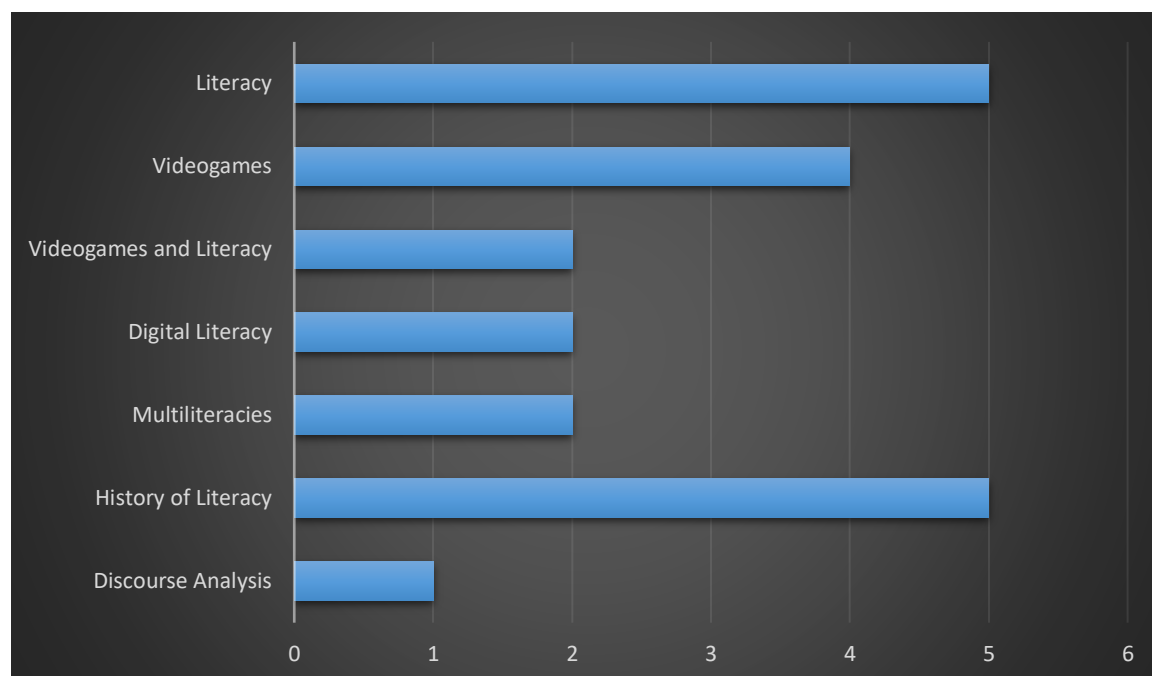
Figure 8*MODES by Type*

Note. The figure reveals the types of MODES included in my literature review (i.e., Media, Observation, Documents, Experts, and Secondary Data).

Step 5: Expanding the Searches. Expanding research and taking the literature review to the next level requires the use of comprehensive and contemporary data that relies on MODES (Media, Observation(s), Documents, Expert(s), Secondary Data) as the means to acquire information (Onwuegbuzie & Frels, 2016). Some of the MODES that I included in my literature review are government documents, an encyclopedia, conference papers, monographs, game-related web pages (Documents), a journal containing an interview with an expert (Experts), and secondary data. Figure 9 distinguishes the books and the book chapters by title.

Figure 9

Books and Book Chapters by Topics



Note. The figure is a summary by topic of books and book chapters included in my literature review.

Step 6: Synthesizing the Information. The analysis of qualitative and quantitative research articles and MODES was carried out to synthesize the information

and generate themes discussed in the literature review. Onwuegbuzie and Frels (2016) proposed that three considerations be made while synthesizing information from the sources, including the study's research approach. These comprise the use of theory and the research method, including the measures used and the research procedure. A procedure such as the thematic analysis that I used to analyze my 247 diverse includes 97 research articles mined from the databases after selection and deselection occurred, four dissertations, and the MODES I selected for inclusion in the literature review. First, I analyzed each article, dissertation, and MODES from my data corpus to generate the overarching themes discussed in my literature review using the thematic analysis method. Nowell et al. (2017) defined thematic analysis as a method to identify, analyze, organize, describe, and report themes found within a data set. The process of thematic analysis included me searching for keywords collected from each article to identify recurring themes. Then, I began entering the keywords into a theme column of the summary table on the Google Sheets I had created. Next, I started placing each theme beside each corresponding article. Lastly, I used different colored highlighters to code the keywords and sorted them into groups. The themes that emerged from the analysis of my review of the literature were (a) Literacy, (b) Game-based Learning, (c) Cognitive Skills in Videogaming, (d) Social Skills in Videogaming, (e) Academic Performance and Future Careers, (f) Collaboration, (g) and Affinity Spaces. Figure 10 shows a sample of the theme sets coded during my analysis.

Figure 10*A Partial Summary of Results from Thematic Analysis of Codes*

	G	H	I	L	M
567	This study focuses on three objectives. First, it investigates distinctive profiles of adolescents based on combinations of their levels of behavioral, cognitive, and emotional			Cognition Skills	
568	engagement with school. Second, it examines whether adolescents' educational development outcomes (GPA) and extent of use of utilitarian (school-oriented) and hedonic				
569	(social media and videogames) information technologies (IT) vary as a function of their				
570	school engagement profiles. Third, it probes the mediation effects of adolescents' extent of				
571	use of utilitarian and hedonic IT on the relation between the different school engagement				
572	dimensions and educational development outcomes. The sample (n = 6885) was drawn				
573	from a large nationally representative dataset that is part of a series of annual surveys of				
574	American adolescents. Latent profile analysis identified five distinctive profiles of adolescents based on the combinations of their levels of three school engagement dimensions.				
575	The results of ANCOVA analyses indicated that these profiles differ in the use of utilitarian				
576	and hedonic IT as well as GPAs. Moreover, results of structural equation modeling showed				
577	that while the extent of use of hedonic IT partially mediated the effect of school				
578	engagement dimensions on GPA, the extent of use of utilitarian IT did not. Considering the				
579	importance of adolescents' school engagement for their development and the essential				
580	role of IT in adolescents' lives, our findings make important contributions to the literature				
581	and shed light on promising avenues for future research				
582					
583	In recent years, there have been rising concerns about the impact of online video game play on users'				
584	socialization, particularly among adolescent players. The current study addresses one of these concerns				
585	and evaluates the potential impact of social displacement on the size and quality of users' social circles				
586	due to video game play. Using a representative sample of adolescent players, the results provide support				
587	for the emergence of social displacement effects. Increased social online video game play, but not social				
588	offline video game play, was found to correspond with smaller, and lower quality, offline social circles.			Social Skills	

Some of the themes were assigned sub-themes and sub-sub themes as arranged below:

Theme 1. Literacy- Sub-themes: A Brief History of Literacy; Multiliteracies; Literacies Practices; Videogaming and Literacy; Adolescents and Gaming Practices divided into sub-sections: (i) Videogames, Adolescents, and Literacy, and (ii) The Literacies in Gaming: What Might These Look Like? Then, the sub-theme- Men and Gaming Literacies.

Theme 2. Videogaming Types- Sub-themes: Serious Games; Educational Games, and Gamification.

Theme 3. Game-Based Learning- Sub-themes: Informal Learning and Gaming; Game-Based Learning versus Traditional Learning; Critical Literacy Learning, and Videogaming and Learners' Behavior. The Critical literacy learning sub-theme is further divided into the sub-section: Information Literacy Skills.

Theme 4. Cognitive Skills in Videogaming- Sub-themes: (i) Language Skills in Videogaming (ii). Executive Functions in Videogaming, and (iii) Learning Incentives and Attention in Videogaming.

Theme 5. Social Skills in Videogaming- Sub-themes: (i) Emotional Intelligence and Social perception Skills in Videogaming (ii) Social Interaction Skills: Race and Gender in Videogaming. The Emotional Intelligence and Social perception Skills in Videogaming sub-theme further expands to include sub-sections- (a) Feeling Better and (b) Spock.

Theme 6. Academic Performance and Future Careers. No sub-themes were found in this category.

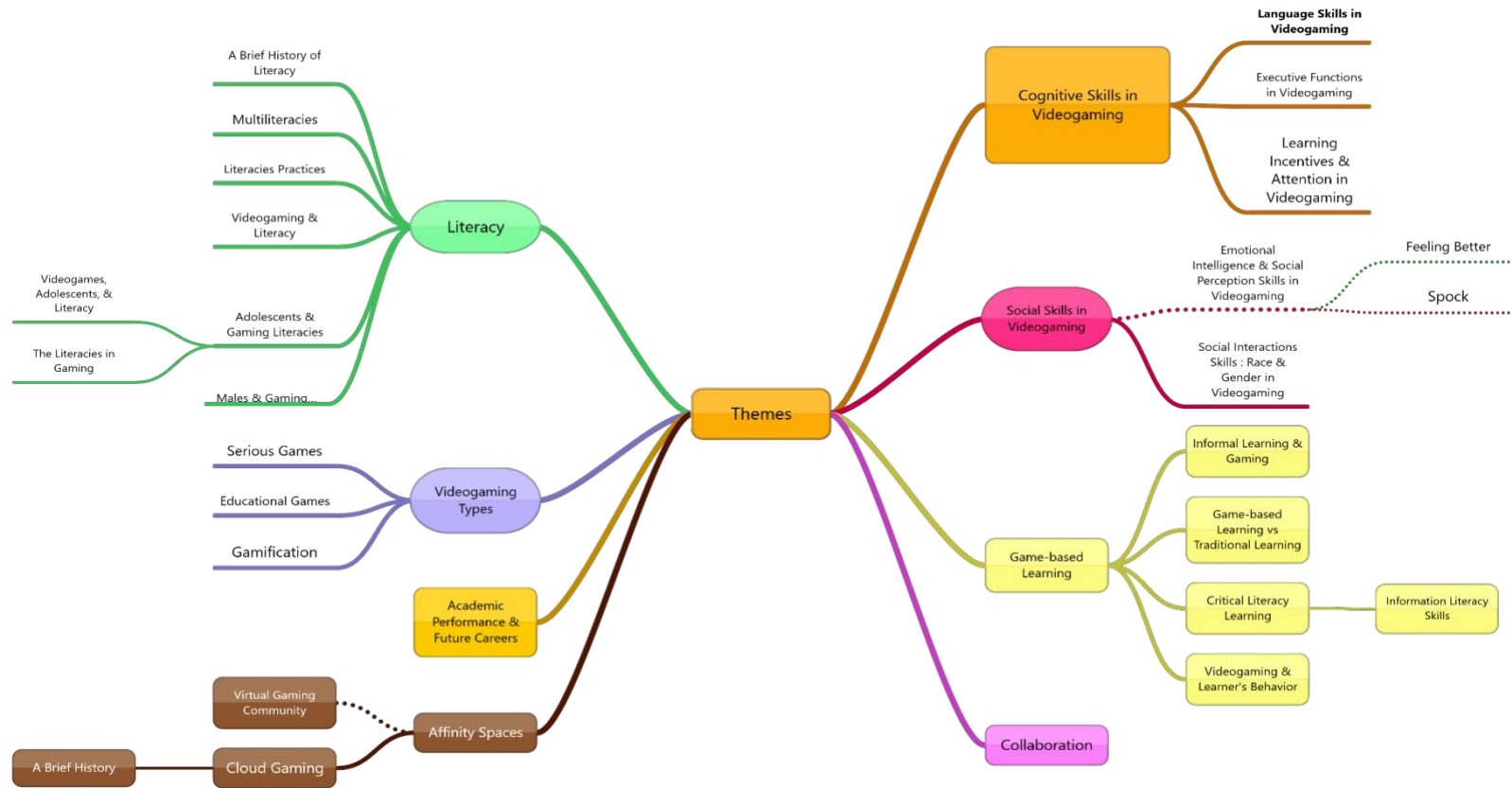
Theme 7. Collaboration. No sub-themes for this category.

Theme 8. Affinity Spaces- Sub-themes: (i) Virtual gaming Community with the sub-section- (a) play; (ii) Cloud gaming with the sub-section- (b) A Brief History of Cloud gaming.

On the next page, Figure 11 shows a chart of each central theme and their related sub-themes and sub-sections for my literature review.

Figure 11

Themes and Sub-themes for Comprehensive Literature Review



Note. A mind map presentation of all my literature review themes and sub-themes.

Step 7: Writing a Comprehensive Literature Review Report. According to Onwuegbuzie and Frels (2016), the last step involves conveying information gathered, which is done in different ways represented with the AVOW mnemonic, including dances or films, visualizing through art pieces or photography, oral presentation, and writing. Therefore, I determined that the most effective way to provide my readers with an understanding of the literature I reviewed was to produce a written report that detailed the major themes found in my literature review.

Theoretical Framework: Layered Literacies and the Feedback Loop

The study applied a hybrid theoretical framework of Abrams's (2014) layered literacies and the feedback loop (Abrams & Gerber, 2013) to understand males' gaming literacies within the Crayta/Stadia community. Abrams (2014) defined layered literacies as the fluidity of texts and experiences occurring online, offline, and between these two spaces as learners navigate "their virtual and non-virtual worlds, skills, and knowledge sets" (p. 15). Multiple researchers proposed using the layered literacies theoretical framework to meet the rising need for understanding how players engage in communication through technological means (Abrams & Gerber, 2015; Abrams & Walsh, 2014; Garcia, 2020b; Shulsky et al., 2017). Since the creation of the layered literacies framework, multiple researchers have suggested that the layered literacies theory involves embracing learning as a fluid and multi-directional process that consists of combining independent and collaborative practices that are self-directed and based on the student's interests (Abrams, 2014; Abrams, 2017; Abrams & Gerber, 2021; Garcia, 2020b; Lucci et al., 2016). Layered literacies engage learners by allowing them to use different modes of learning, offering them the opportunity to create their rhythm of

knowledge, both in the modern game ecology and as part of the classroom culture (Abrams, 2015; Abrams & Gerber, 2015). Literacies that are layered are inherent in digital technologies like videogames that use images, symbols, words, and in-text that manipulate the formats using fonts or margins to mean different things to readers. Layering literacy requires active participation, ideation, and interpretation for learners to comprehend digital and non-digital literacies. For example, videogaming uses progressive instructions for the player to move from one level to the next, and they have to interpret the symbols, images, sounds, or gestures.

Additionally, within videogaming experiences, applying a layered literacies frame involves using multiple and diverse instructions for authentic meaning-making that learners can relate to the real world (Abrams & Gerber, 2015). For instance, role-playing games offer platforms for players to engage in working with multimodal resources that allow them to learn collective understanding, writing, reading, and communication skills as they interact with other players in gaming sessions. Niemeyer and Gerber (2015) provided this evidence in their study of *Minecraft* YouTube content creators. Garcia (2020a) found similar experiences accurate; in his 26-month ethnographic study of the tabletop role-playing game, *Dungeons & Dragons*, he found that such skills or literacies spread across three different domains. The skills, *in the game* (e.g., players reading magic scrolls and books), *at the table* (e.g., teaching new players, engaging in dialogue and role-play), and *beyond the table* (e.g., painting, podcasting, mapmaking, and others) were learned because the tabletop games were embedded with literacy practices that facilitated educational growth.

Other studies found that layered literacy models help advance students' identity, grow their skills and intellect, and ensure they are intellectuals (Abrams, 2015; Gholnecsar, 2018). In addition, layered literacies can also occur in formal educational environments, not just informal learning environments. Layered literacies enable students to advance critical thinking by encouraging them to develop their understanding of texts and recreate notions from books creatively (Lucci et al., 2016). Lucci et al. (2016) found that most players prefer game-based learning as it easily captures and retains their attention and is interactive, unlike paper-based texts. Through the videogame *Minecraft*, the learners could boost their world-building skills and collaborate to recreate scenes from the texts they had read for class (Lucci et al., 2016). Literacy research offers novel ways to understand and revision students' literacies found in videogaming (Alexander, 2009).

In furthering my framework for the study, I explored the concept of Abrams and Gerber's (2013, 2021) feedback loop to unpack how players make meaning in a videogaming space. Gerber and Abrams (2018) described feedback loop as the meaningful experiences that players bring individually or collectively to bear in game plays (i.e., in-the-moment experiences, prior knowledge, on-and off-screen feedback, and others) iteratively influenced by game mechanics and narratives. These practices are iterative, reflexive, and interest-driven, and players are bound to learn via trial and error, which is critical to their success (Abrams & Gerber, 2013, 2021; Gerber & Abrams, 2018). Akbar et al.'s (2017) perception of feedback loop is similar to that of Abrams and Gerber (2013, 2021). Akbar et al. (2017) defined the term as the "recursive and iterative cycles of interactions originating from the individual and collective contributions over

time. They play an important role in improving and refining innovations, and in learning, reflection, and articulating new knowledge” (pp. 447-448). While Akbar et al. (2017) focused on the dynamic processes of organizational knowledge creation, Abrams and Gerber (2013, 2021) and Gerber and Abrams (2018) emphasized that players are a critical part of the learning process in the context of videogaming. Gerber and Abrams (2018) stressed that this feedback process engages players' interest, boosts their critical thinking, affords collaboration with peers, and supports advances in game play.

Abram's and Gerber's Feedback Loop

According to Abrams and Gerber (2021), the feedback loop comprises an iterative system of four main aspects within and around the game that provides players essential information on how to navigate game play via (i) Objectives and rules (e.g., how and why the game is played) (ii) Progress bars, or real-time info about progress (iii) In-game maps, or visuals of a player's, and sometimes other opponents' or team members' in-game locations (iv) Leaderboards (e.g., after-game scoreboards). Even though each attribute has its own goal, they depend on each other for players to make something worthwhile of their gaming or learning experience. Succeeding at any game requires players' response to each of these four aspects individually and as a whole (Abrams & Gerber, 2013; Abrams & Gerber, 2021; Gerber & Abrams, 2018). Abrams and Gerber (2021) held that players do not just play videogames but interact with other items related to gaming. The authors contended that learning through the feedback loop often requires players to move across spaces, texts, and interactions with other players, spectators, and others (Abrams & Gerber, 2021). This way, gamers can layer their literacies across various texts, games, books (e.g., user guides in walkthroughs on tips and ideas to navigate the games), non-

verbal communications, and others. For example, Ethan first read on-screen texts, images, and symbols. Next, he had to combine his prior knowledge of the game and science to make informed decisions. Then, he used the information he received from his fellow player, Armond, to navigate his way through the game *Faster Than Light* (Abrams & Gerber, 2021).

Abrams and Gerber's model is essential for this study because the feedback loop offers a crucial understanding of the intricacies of the gaming system and how players make meaning of literacies during game play. For more on the feedback loop, please refer to Chapter 1.

Having talked about the layered literacies and feedback loop, which serve as the frameworks for the study, next, I will discuss the themes for the study. The comprehensive literature review is organized into eight themes as follows: 1) Literacy, including the sub-themes: (i) A brief history of literacy (ii) Multiliteracies (iii) Literacies practices (iv) Videogaming and literacy (v) Adolescents and gaming practices, which are further divided into sub-themes (i) Videogames, adolescents and literacy, (ii) The literacies in gaming, and the sixth sub-theme under literacy, males and gaming literacies. (2) Videogaming types, which includes the sub-sections (i) Serious games (ii) Educational games (iii) Gamification (3) Game-based learning, with sub-categories (i) Informal learning and Gaming (ii) Game-based learning versus Traditional learning (iii) Critical literacy learning that includes the sub-section- information literacy (iv) Videogaming and Learners' behavior (4) Cognitive skills in videogaming with sub-divisions (i) Language skills in videogaming (ii) Executive functions in videogaming (iii) Learning incentives and attention in videogaming (5) Social skills in videogaming,

including sub-themes (i) Social interaction skills: Race and gender in videogaming (ii) Emotional intelligence and social perception skills in videogaming, divided into sub-sections (i) Feeling better and (ii) Spock. (6) Academic performance and future careers (7) Collaboration (8) Affinity spaces; further divided into sub-categories (i) Virtual gaming community with a sub-section, play, (ii) and cloud gaming with a brief history of cloud gaming.

Literacy

Nila Banton Smith's (2002) account of the emergence of reading instruction revealed that literacy is not happenstance, but a practice built up centuries ago. She described,

As we gaze, we marvel at this product of 20th - century genius, and perhaps it does not occur to us that this seeming innovation had its prototype in the very first writing done by man. To be sure, primitive man had no airplane and no alphabet, but his messages were drawn in the air and his fellow men read them element by element as they were revealed. His hand was his writing instrument, gestures were his characters, and the air was the medium upon which they were written. (p. 2).

Literacy was not this translucent and apt, and Smith (2002) argued that reading or literacy instruction was once unbalanced and distorted. Meanings were static, and there were no standard representations of meaning save for inscriptions on stones, clay tablets, hornbooks, scrolls, gingerbread, old tiles, primers, cuneiform tablets, The ABC, Cyrillic alphabets, and others (Boeckeler, 2017; Boyarin, 1993; Manguel, 1996; Smith, 2002).

A Brief History of Literacy

According to Barton (2017), the word literate in the sense of being educated appeared in 1432. The term literacy formed from the Latin word *lit(t)era* appeared 200 years later in a sentence in 1883, which was interpreted as the skills of writing and reading the letters (Barton, 2017; Johnston, 2016; Kaestle, 1985). This narrow definition of literacy as the skills of knowing could not be generalized to other aspects of life; hence there was a need for a broader context to position literacy as a social practice that transcends beyond using a script or the textual interpretation (Barton, 2017; Boyarin, 1993).

In the mid-fifteenth century, the technology era completely revolutionized the face of reading instruction in America (Manguel, 1996; Smith, 2002). Manguel (1996) compared the scrolls that existed then to the modern-day computer screens, which have further advanced into interactive blackboards, 3D virtual reality, cloud computing, videogaming, cloud gaming platforms, and others.

Literacy continues to evolve due to society and the production of new technologies (De Joyce & Feez, 2016; Leu et al., 2017; Meyers et al., 2013; Montoya, 2018). Barton (2017) suggested that literacy is not monolithic and can be used for various purposes. Leu et al. (2017) also discussed literacy's deictic nature, which means that the topic is continuously being reconceived by changing contexts. Similarly, Montoya (2018) viewed literacy as plural and defined the term as the capacity to describe, comprehend, generate, and communicate using different materials related to different contexts. This definition has evolved to include literacies in the information age, such as instant

messaging, blogging, social networking, video production, crafting game scripts, podcasting, and others (Alvermann et al., 2012).

Conventional scholars treated literacy as an isolated variable, independent of social context (Bartlett, 2008; Street, 1993), and most times as having a “fixed and settled” (Gee, 2015a, p. 6) meaning. On the contrary, contemporary scholars perceived the need to move beyond the autonomous model (literacy) to a subjective model of literacy (literacies) and have interpreted the term differently as influenced by their interaction in various disciplines. This has further pushed literacy scholars to explore the multiple possibilities and practices of reading and writing (De Joyce & Feez, 2016; Hodgson, 2019). For example, Kristeva (2002), Moje et al. (2009), New London Group (1996, 2000), Tredinnick (2007), Wertsch (1993), and Venuti (2003) upheld that the use of language is boundless and enormous. Therefore, literacy is inseparably related to the social, historical, and diverse cultural practices linked with reading and writing in diverse contexts. These scholars perceived literacy as active and playing various functions depending on the context. Furthermore, Bartlett (2008) succinctly described what counts as literacy today as “the result of ongoing, complex socio-cultural negotiations” (p. 2). In the mid of 1990s, the singular denotation of the word ‘literacy’ seemed obsolete, especially with the influx of new technologies that continues to shift readers’ interaction with literacy from day to day; thus, birthing multiliteracies (Cope & Kalantzis, 2015).

Multiliteracies

Multiliteracies emerging from the New London Group comprise educationally suitable suggestions and conceptual schemas applicable to expanding literacy practices (Kalantzis et al., 2010). Multiliteracies move beyond the ability to process things in the

heads to produce something ingrained in the context and the culture (Gee, 2007, 2015b). These multiplicities in literacy are the identities people assume as part of a socially meaningful group while using text in practices (Gee, 2014). The traditional way of learning limits the student's ability to adapt to the new way of interacting and communicating and may not prepare learners fully for the future (Sang, 2017).

Multiliteracies beyond the written and printed texts is a combination of text and images and an expansion of diverse modes of representation via music, visuals, images, gestures, artifacts, graphs, symbols, sounds, music, movement, videos, videogames, and others (Abrams, 2009; Gee, 2007; Gee, 2014; Kress, 2010; Kress & Selander, 2012) to relay information. For example, introducing visuals improves students' ability to foster critical engagement and enhance their interconnection with the rest of the world. In examining how five teenagers used Twitter to establish their new literacy practices, Gleason (2016) noted that the teenagers use Twitter as a mode of communication, self-expression, information sharing, friendship maintenance, and education. Following the same trend, in later research, Gleason (2018) explored how students were thinking in hashtags and using tweets to create a variety of multimodal texts such as images, videos, emojis, gifs, and inviting other users to discussions via mentions. Gleason (2018) argued that social media has made it possible for players to engage in social acts that earlier seemed impossible.

Manguel (1996) further steered researchers toward "rethinking" the multiplicities that are inherent in literacy "... Like the act of reading itself... it skips chapters, browses, selects, rereads, refuses to follow conventional order..." (p. 23). Furthermore, Leander and Boldt (2012) brought these *acts of reading* to the fore. The authors proposed that

learners should not just produce text but also move with and through it. Learning should exceed beyond what learners create to the variations of happenings unfolding in the process (Leander & Boldt, 2012).

Globalization and multiliteracies have necessitated students to learn beyond cultural, physical, or political boundaries as the world has become a global village. Education curricula are expected to prepare children for the worldwide citizenry as they will inevitably have to interact with a diverse community worldwide village (Karpati et al., 2017; Shulsky et al., 2017). Perin (2019) yet extended the definition of literacies to encompass the ability of learners to:

perform tasks that involve searching for and integrating information across multiple, dense texts, constructing syntheses of similar and contrasting ideas or point of view, or evaluating evidence and arguments. He or she can apply and evaluate logical and conceptual models, and evaluate the reliability of evidentiary sources and select key information. He or she is also aware of subtle, rhetorical cues and can make high-level inferences or use specialized background knowledge (p. 3).

For learners to comprehend today's new and sophisticated patterns, it is not sufficient to rely solely on written or oral text but on other modes of expression woven together to make learning constructive, engaging, and meaningful (Kress & Selander, 2012). Hence, the various text elements other than the grammatical aspects in multiliteracies help students build their text interpretation (Reading comprehension, n.d). Moreover, Moje et al. (2009) identified texts and literacy practices as tools for enacting, making, contextualizing, performing, describing, and uncovering identities, which means

that people's actions are mediated by the diverse texts they interact with (Gee, 2014; Gee, 2015b; Moje et al., 2009).

Literacies Practices

According to researchers, literacy practices refer to what people do with literacy or text, and people's actions, interests, and motivations are not separated from the environment in which it occurs (Gee, 2014; Wertsch, 1993; Wertsch & Rupert, 1993). Literacies, or literacy practices, have been identified as continuous learning processes that enable individuals to attain set objectives, develop their knowledge, and be participants in their community and society (Gee, 2014, 2015b). Practice is "a socially recognized and institutionally or culturally supported endeavor that usually involves sequencing or combining actions in certain specified ways" (Gee, 2014, p. 32).

Moreover, literacy practices refer to ways in which words and texts are used for readers to make meaning and sense of their lives through activities associated with writing and reading (Hasselbacher, 2018). Also, teaching technical basics skills and literacies has been expanded to include core competencies as learners are taught how to learn (Shulsky et al., 2017). Finally, they are ways of exchanging meaning across contexts or cultures using words, print, or digital resources, which is continually shifting and advancing.

Literacies practices learned are different for learners in various development stages. They advance in their education from early practices like singing, playing, and talking in children to critical thinking and problem-solving in gamers and older populaces. They are social- and culturally-situated methods that include imitating, instruction, and initiation of learners. Traditional teaching methods are done in a

classroom setting and involve in-person learning, while modern technology involves integrating technologies such as game-based learning (Plass et al., 2015; Steinkuehler, 2012). These progressive practices aim to build and improve learners' capabilities and enable them to read, interpret, learn, and make sense of resources. Additionally, literacies practices are affected by internal factors like cognition, ecological factors like the learning environment, and psychological factors like the learner's motivation (Shulsky et al., 2017). A learner's literacies outcomes are influenced by the amount of time spent in teaching, accessibility of appropriate content, learner's motivation, quality of instruction, and individualized teachings that align with the students' needs.

Videogaming and Literacy

Learners acquire a new literacy when they learn to play videogames as they are not only engaged in active and critical learning, but they are learning to experience the world in a new way (Gee, 2007). However, as earlier mentioned, literacies learned are not the same for learners (i.e., learners function at different levels of literacies). The rule is no different regarding the literacies found in gaming as players enact them (Apperley & Beavis, 2013). Likewise, Smith and Moore (2012) asserted that players are literate differently. One of Apperley and Beavis' (2013) inclusion in defining gaming literacy is textual literacy, "the new literacies associated with digital iterations of 'reading' (or playing) and 'writing' (or producing) in combination and in multimodal forms" (p. 2), as expounded by the New London Group.

Videogaming has influenced individuals worldwide, beginning with those from its birthplace-the United States (Williams, 2006). A recent state of online gaming report scrutinized the online behaviors of videogamers across countries, including the U.S, U.K,

Germany, Singapore, South Korea, Japan, Italy, India, and France. The findings showed that 18 to 45-year-olds preferred to play videogames rather than watch TV shows or movies (Limelight Networks, 2020). Additionally, studies revealed that even children are involved with videogames as their first interaction with technology (Kracht et al., 2020). Videogaming has influenced players' downtrend in outdoor recreational activities as most spend their time playing videogames online (Pergams & Zaradic, 2006).

Nevertheless, the lack of consensus on the impact of videogames among players is evident in the numerous studies undertaken. Some indicate adverse effects such as addiction (Desai et al., 2010; Griffiths, 2010; Griffiths et al., 2016), obesity (Guy et al., 2011; Strahan & Elder, 2015), low academic achievement (Brunborg et al., 2014; Wright, 2011), poor relational skills (Milani et al., 2017), aggression (Adachi et al., 2012; Sherry, 2001) and attention deficit (Mathews et al., 2018; Trisolini et al., 2018).

On the other hand, some researchers contend that videogaming is beneficial to players as it facilitates visual-processing skills (Bavelier & Green, 2003); engages players in physical activity (Kracht et al., 2020); enables them to build friendships (Lobel et al., 2017); enhances visual-motor coordination (Tobin & Grondin, 2009); increases players' cognitive skills (Chopin et al., 2019; Colzato et al., 2017; Nuyens et al., 2017); boost literacy levels (Yang et al., 2020); spatial cognition (Bediou et al., 2020), and helps them gain skills that are vital in this technological era and their professional growth (Pergams & Zaradic, 2006).

However, despite all suggestions, there is a general agreement that videogaming has significantly influenced players and society at large, especially in their literacy capacities and social interactions. For example, videogames have been integrated into

formal educational contexts for STEM learning (e.g., Toh & Lim, 2022) to motivate students' learning (e.g., Deng et al., 2016), draw on students' funds of knowledge for learning activities (e.g., Toh & Lim, 2022), critical thinking (e.g., Barab et al., 2012), ethical thinking (e.g., Schrier, 2015), problem-solving skills (e.g., Kiili et al., 2015), social skills (e.g., Craig et al., 2015), and creativity (e.g., Ott & Pozzi, 2012).

Additionally, learners need to develop their reading and writing skills for better interactions in the classroom and in social environments (Mackey, 2007). Videogaming affects players' communication skills in reading and typing (Mackey, 2007; Mahmoodi-Shahrehabeki, 2019; Scolari & Contreras-Espinosa, 2019; Steinkuehler & King, 2009; Terry & Malik, 2018). Most videogames are designed to have multiple players and chat rooms that allow players from across the globe to interact through typing and reading (Oblivator, 2018). These have led to the growth of new gaming communities different from new communities because communication is majorly reliant on online platforms, including video conferencing, texting, and audio calls (Oblivator, 2018). Theoretical reviews and research findings indicate that videogames increase literacy education quality by improving learners' productivity when videogames are used to give instructions (Mahmoodi-Shahrehabeki, 2019). Moreover, by providing opportunities to engage in written communication repeatedly, gamers build their writing skills and vocabularies and improve their language, which is evidence of improved literacy skills (Terry & Malik, 2018).

Adolescents and Gaming Practices

Adolescents constitute many gamers in the gaming community, with the prevalence of male adolescent gamers being higher than that of female adolescent gamers

(Lenhart, 2015; Limelight Networks, 2020; Picton & Clark, 2020). For example, statistics showed a gender split in the distribution of videogamers in the United States between 2006 to 2021. However, as noted earlier, the distribution of US videogame players by age revealed that 38% of players still come from the 18 – 34 demographics (Clement, 2021), a category under which adolescents and young adults fall.

Videogames, Adolescents, and Literacy. Young people's engagement in practices such as videogaming has been influential in shifting what counts as literacy today (Alvermann et al., 2012). Adolescents display diverse possibilities, skills, experiences, and crafts regarding their engagement with literacy. They are immersed in layered multimodal experiences through which they make sense of the world around them (Lewis, 2016). According to Lu and Lien (2020), adolescents prefer to spend most of their leisure time playing videogames and are unlikely to discredit or have adverse effects. A study revealed gendered motivations for boys versus girls in videogaming, such that while boys preferred gaming to avoid bullying, girls were looking for interactive spaces and life satisfaction (Holtz & Appel, 2011). The study, which involved analyzing anonymized and self-completed questionnaires from students, also found that higher gaming levels were associated with opposite-sex friends, minimal parental mediation, and early adolescence. Parental mediation was associated with withdrawal and anxiety as adolescents feel neglected and unappreciated, with minimal parental mediation causing them to engage further on the internet and videogames. The researchers found that online role-playing games among adolescents are prevalent and predict problem behavior (Holtz & Appel, 2011). Although, Holtz and Appel (2011) submitted that their

self-report measure might have overestimated the percentage of people who have problems beyond variations expected in healthy adolescent development.

The Literacies in Gaming: What Might These Look Like? Abrams and Russo (2015) described how an educator scaffolded instruction by introducing the Puzzle Maker program to aid students' learning of the "application of mathematical concepts of area, surface areas, and volume via the creation of game spaces (p. 133)." Through collaborative discussions, online walkthroughs, teacher-generated worksheets, and YouTube videos, students could move beyond game obstacles that could hinder their progression (Abrams & Russo, 2015).

Through collaborative writing, Gerber and Price (2011) painted a picture of the diverse ideas and experiences students could bring to the English language arts class, harnessed by videogaming. These include interpreting texts through differentiated avenues through blogging, searching for information online using textual, auditory, and visual methods, and talking with friends through instant messaging, texting, and social networking. In addition, Gerber and Price (2011) suggested that scholars could bring videogaming into the class to aid students' writing process in several writing genres. To illustrate this, the researchers described how students could be involved in writing expository essays and texts by providing a detailed description of scenes, navigating game scenes through walkthroughs, writing their own walkthroughs of the games they love, and then posting it online (Gerber & Price, 2011). Besides, students could discuss and gain new ideas from others in persuasive writing by blogging and expressing themselves in creative writing through fan-fiction or creating a video to make their own story (Gerber & Price, 2011).

Likewise, through an ethnographic study, Magnifico et al. (2013) observed the literacy practices among players in three online affinity spaces. These included *The Hunger Games*, *Neopets*, and *The Sims* to understand how learners can navigate, create, and share transformative works to give new expressions, such as fan-inspired stories, videos, and games involving different modes and semiotic features. For example, players engaged in multimodal literacies by designing banners, producing *Sims* videos, podcasts, blogs, maps, writing tutorials about photo editing and writing, and sharing with others on *The Sims Writers Hangout* (SWH).

Through a qualitative case study, Bebbington and Vellino (2015) examined the information behaviors of players and what information literacy skills are needed to play *Minecraft* to advance in the game. The study found that players could individually or collaboratively collect, build, and design their artifacts, cities, or buildings and locate and assess the information needed within and outside the game. Players were also able to recognize information gaps and what sources would provide such information. Nevertheless, the study has several limitations, such as a small sampling size, which may not adequately represent the general population of teenage game players (Bebbington & Vellino, 2015). Still, the information literacy skills acquired in such a gaming context are applicable in other contexts.

On the other hand, Nardi (2010) painted a compelling picture to analyze the *World of Warcraft* (WOW) space to promote participatory activity inside and outside the game, such as fan art, fan fiction, and others, to gain in-depth knowledge of the WOW platform. Nardi (2010) observed players in the United States and traveled to Beijing to check out the largest group of WOW players- the Chinese. Nardi (2010) played on the

computer for many hours, read *WOW*-related websites, blogs, forums, wikis, news articles, and watched *WOW*-related videos. Initially, no precise questions drove the author's framework as she claimed to explore the "strangeness of a new culture" and go with the flow. However, as the investigation progressed, the questions became obvious to clarify where the research was heading. Nardi (2010) offered readers a thick description of a gaming experience through observations, interviews, informal conversations, document analysis, and others.

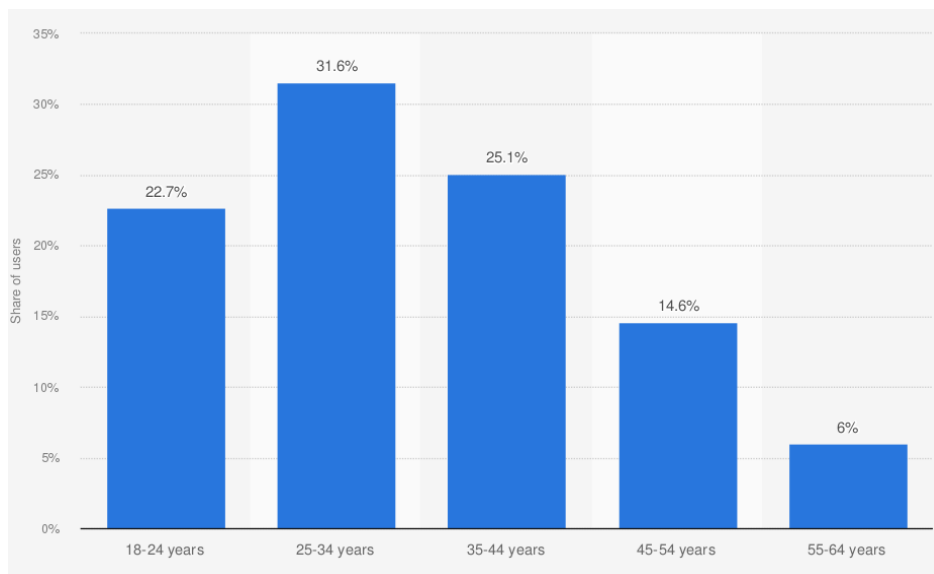
However, while exploring commercial off-the-shelf games, Gerber et al. (2012) stated that gaming does not necessarily mean bringing the game itself into the class but augmenting activities or literacy activities using various media that could yield many learning gains for students. The most important thing to bear in mind while using videogames to engage students is to make sure students grow into critical media consumers (Gerber et al., 2012). As Gerber et al. (2012) explained, an instance is a teacher bringing videogame clips and screenshots into the class to prompt discussions on topics and writing assignments for students. For example, she postulated that typing the appropriate words into a search engine could allow teachers to download a clip for classroom use, and she gave some examples, such as *The Sims* series (rated E for Everyone), the popular *Harry Potter* (rated E for Everyone), and others. Gerber et al. (2012) noted further that the lesson could be extended by having students research issues arising from the discussion of the videogaming clips, such as sociocultural issues, among other topics.

Males and Gaming Literacies

Studies revealed that younger men play videogames, but so do a diverse group of others (Brown, 2017). The gaming industry is becoming more diverse and all-inclusive, and more people are becoming gamers (Aziz, 2022; Yanev, 2022), and the average age of people playing videogames continues to rise (Clement, 2021). For instance, a Statista report showed that 31.6 percent of videogame users in the US were between 25-34-year-olds (making it the biggest consumer age group). Individuals aged 35-44 years made up the second-largest group of videogamers at over 25 percent, and 18-24 years followed with 22.7 percent as the third-largest group (Clement, 2021). Even though the videogame landscaping is shifting, females now make up 41-45 percent of people playing videogames (Rennie, 2020; TV Tropes, n.d; Statista Research Department, 2021; Yanev, 2022). However, one-third of young men agree that the term “gamer” describes them well, more than three times the proportion of young women who describe themselves as gamers (Duggan, 2015). Overall, males have played videogames more frequently than females (Duggan, 2015; Brown, 2017; Statista Research Department, 2021). In 2021, 41.5 percent of videogame players in the US were female, and 58.5 percent were male (see Figure 12).

Figure 12

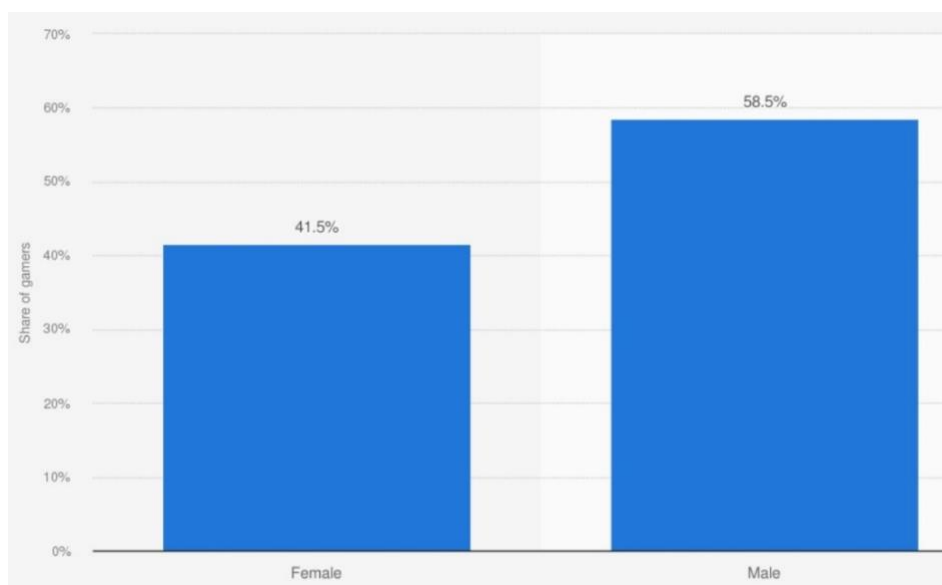
Distribution of Videogame Users in the United States in 2021, by Age Group



Note. Adapted from Statista (2021).

Figure 13

Distribution of Videogame Users in the United States in 2021, by Gender



Note. Adapted from Statista (2021).

Toh and Lim (2022) conducted a qualitative dual case study of 22-year-old and 24-year-old college males to examine their out-of-school literacies and its implications for teaching and learning in formal and informal learning contexts. The participants got selected through convenience and snowball sampling via advertisements posted on the university's website. A think-aloud protocol was employed by requesting the students to explain how and why they made specific choices or performed certain actions during and after playing the games, *The Walking Dead* and *The Last of Us*. Results showed that the participants demonstrated critical thinking, empathy, and multimodal literacy in their game play (Toh & Lim, 2022).

Abrams (2009) affirmed that genuine learning occurs when what is learned is connected to what exists beyond the classroom. While examining three male gamers struggling academically, Abrams (2009) discovered how videogames provided a visual context for the players to comprehend the information they needed for their academic materials, including historical information, assigned vocabulary, or simulation features. In addition, the researcher drew attention to the need to bridge students' in and out of school literacies and their learning experiences (Abrams, 2009).

Furthermore, Lane (2018) carried out a multi-case ethnographic study to examine males' experiences with videogaming. He found that learners gained and practiced their collaborative efforts and meaning-making skills through metacognitive literacy. The study involved four males in the community center and two others from an after-school video club who were observed, and data were collected for analysis. Findings revealed that the males' videogaming experiences increased their knowledge of culture, innovation, strategizing, and decision-making (Lane, 2018). However, the

generalizability of inferences is limited since the research sample was not representative and was small.

After discussing the theme of literacy with sub-sections and the literacies in videogames, there is a need to identify and expound on the different gaming categories to understand the topic better.

Videogaming Types

Different types of videogames exist, and they are gaining widespread recognition across the globe. This section reviews some gaming categories to understand their classifications, such as serious games, educational games, gamification, and game-based learning. Although the various types of games appear similar, they have unique attributes that differentiate them.

Serious Games

Serious games comprise different types of educational games. This includes rehabilitation and social improvement (Backlund & Hendrix, 2013), and they are used for other purposes as well, such as healthcare, advertising, marketing (Grendel Games, 2021), interpersonal communication, and cultural heritage (Laamarti et al., 2014). Serious games also cover all aspects of education- “teaching, training, and informing” (Susi et al., 2007, p. 2). Serious games are described differently by various scholars. IGI Global (2021) defined serious games as “electronic games whose main purpose is serious and not simply to entertain” (para 1). Grendel Games (2021) gave almost a similar definition, “games that have another purpose besides entertainment” (para 1). These types of games are renowned for enhancing learning and behavioral change. In serious games, the gamers’ experience is linked to the knowledge, attitude, or skill that can be applied in the

real world (Gorbanev et al., 2018; Laamarti et al., 2014; Susi et al., 2007). Examples of serious games include *Sea Hero Quest* and *Underground*. Laamarti et al. (2014) also revealed that the games were invented for educational purposes and not amusement (Laamarti et al., 2014). The discovery led to innovative gaming to improve learning in various subjects. On the other hand, Cano et al. (2015) acknowledged the role of videogames in educational and therapeutic purposes, especially among individuals with intellectual disabilities. However, Cano et al. (2015) revealed that not all intellectual disabilities require the use of videogames. Autism and Down Syndrome represent an example of conditions that require the application of videogames. Similar sentiments were shared by (Almeida & Simoes, 2019; Zhonggen, 2019). The use of games for learning is a common trend in modern society, a movement referred to as serious games. These games influence an individual's cognitive and affective attributes (Fleming et al., 2017). It is essential to note that serious games effectively motivate individuals to learn and promote cognitive learning in learners as the approach moves beyond entertainment, facts, and rote learning (Susi et al., 2007). Like Cano et al. (2015), Salvador-Ullauri et al. (2020) acknowledged the significant role of serious games in teaching and learning.

Educational Games

An *educational* game is defined as “the computer game software which has certain pedagogical meaning, can raise the game user's knowledge, skill, intelligence, emotion, manner, the value” (Li et al., 2012, p. 1750). Backlund and Hendrix (2013) classified educational games as serious games designed explicitly for education. Educational games span diverse activities, including theory building, research, teaching, practicing skills, entertainment, operational analysis, and long-range planning (Akl et al.,

2013). Noemí and Máximo (2014) also considered education games an interactive application beyond entertainment and can be applied in other areas such as education, health, and marketing. As a result, the learners have the chance to assess meaning-making decisions and solve problems in a non-toxic, functional learning environment (Akl et al., 2013). Examples include *Study Island*, *Escape Adventure Island*, and the *ESL Taboo* game. According to Beserra et al. (2019), educational games are becoming a vital tool for teaching as they increase students' motivation to learn. However, the videogames' effect may vary with the type, and the time a student has to finish a task. de Lope et al. (2018) also shared similar ideas indicating that the role of educational videogaming has been gaining recognition in the past decade. The study revealed that gaming is applied in various sectors of the economy in modern society, such as education, health, and communication. Thus, videogames are vital for teachers and parents, improving students' learning skills (Martí-Parreño et al., 2018). Unlike the previous studies, Martí-Parreño et al. (2018) explained that the traditional learning approach is less appealing to students in contemporary society. Based on the review, videogames have increasingly become a new tool for teaching.

Gamification

Sailer and Homner (2020) defined *gamification* as the “use of game design elements in non-game contexts” (p. 78), to help users develop certain “behaviors, ideas, and concepts” (Gerber, 2017, p. 88). According to Jain (2020), gamification helps acquire, engage, and retain users. Deterding (2012) emphasized how weaving gamification into learning can deepen students' engagement and readiness to participate. For Deterding (2012), gamification means “amplifying intrinsic values” (p. 17). An

example of gamification is *Todoist*, a productivity app that helps users track their daily operations. The application is recognized for prompting users to finish their tasks and rewarding them with points (Jain, 2020). Another one is Class Dojo to manage learners' behavior in the classroom (Gerber, 2017). Others include *Giobibo*, *Byju's*, and *Fitocracy*.

However, Sailer and Homner (2020) differentiated gamification from serious games, indicating that gamification helps add game elements to change the learning process. Landers et al. (2018) described these gaming elements and how they can be added to real-life processes. Landers et al. (2018) categorized the elements into six groups, namely, game bits (e.g., textures, sounds buildings), game space (e.g., indoor maps), game systems (e.g., ecosystem), game scenarios (e.g., story), game designs (e.g., system design), and derived content (e.g., news and broadcasts).

Drawing inspiration from *World of Warcraft's* game core design and focusing on WOW's rewards, Rapp (2017) unveiled how games are apt at creating complex and wide-ranging design elements that may impact players' experiences and behaviors. The research gave an insight into how the use of *enabling*, *exchangeable*, and *flexible* rewards could "satisfy the needs of autonomy, competence, and relatedness, which might support intrinsic motivations" (p. 396) among players. Nonetheless, Gerber (2017) has brought attention to a pitfall of gamification. The essence of gaming should not be reduced to earning points, badges, and rewards only. Gerber postulated that players should learn through failures by self-regulating their progress, reattempting missions or quests, and re-adjusting accordingly (Gerber, 2017). Gaming is not one-sided; thus, play and failure should go together in the gaming process (Gerber, 2017).

The literacies in gaming encompass many skills, dispositions, and creative qualities of play based on the sophisticated design elements that such context's dynamics make possible. Therefore, many educators seek ways to incorporate educational games into their classrooms (Spires, 2015). One way to achieve this is through game-based learning (Gerber et al., 2014; Lesser, 2020; Plass et al., 2015).

Game-Based Learning

Game-based learning is an approach that integrates videogames into the learning curriculum (Gerber et al., 2014). Whitton (2012) referred to the term as “learning that is facilitated by the use of a game” (para. 1). Cheng and Su (2012) defined it as learning where students use a videogame to achieve simple learning outcomes such as memorization, to complex outcomes such as evaluation, critical thinking, and creativity. These videogames range from commercial off-the-shelf (COTS) videogames to videogames explicitly designed for a particular subject area or class (Gerber et al., 2014). Though these games are created chiefly for entertainment, some do not lack intellectual content or challenges. COTS are available for download as an online purchase and can be bought on the high street and in retail stores. Examples include *Call of Duty*, *SimCity*, *Lost Words: Beyond the Page*, *Ember*, *Get Packed*, and others. As Burchmore (n.d) put it, “some educators are waiting for more educational games to be built, but commercial off-the-shelf games have much to offer already” (para. 2). COTS has offered more diverse learning approaches and has enhanced motivation, which is at par with the traditional method, but with more incredible fun in the learning process (Tannahill et al., 2012).

In the past few years, different fields have experienced significant technological transformations. For example, the education sector is increasingly appreciating the

importance of incorporating videogames into school curricula to inculcate students' various abilities. According to Bourgonjon (2014), game-based learning uses appropriate videogames in and out of the classroom to facilitate teaching and learning and improve learners' literacy skills. Bourgonjon (2014) argued that the inclusion of videogames in instruction should be given much consideration because of the benefits it brings to the processes. Bourgonjon (2014) added that such incorporation had been made easier because today's learners are so conversant with technology that they want to be associated with it in almost everything they do, including learning.

Reinhardt and Sykes (2014) equally promoted the idea that videogames should extensively be included in the learning process. Reinhardt and Sykes (2014) explained that such applications could improve students' learning and reading skills. The authors further detailed how such videogames can be incorporated into learning, including observing outside-classroom gaming practices and the application of COTS games in class (Reinhardt & Sykes, 2014). According to Reinhardt and Sykes (2014), the inclusion methods have proven valid and can help educators introduce videogaming in their teaching practices successfully. When compared with the conventional method of learning, game-based learning offers more innovative, challenging, and greater motivation and participation for learners by generating content in a wide range of ways (Bahrami et al., 2012; Boeker et al., 2013; Chen et al., 2020; Liu & Chen, 2013; Stiller & Schworm, 2019; Telner et al., 2010).

Informal Learning and Gaming

Research has focused on learning outside of school in spaces such as the library, workplaces, student cafeteria, cafes, after school programs, activity-centered clubs,

videogames, and others (Abrams & Gerber, 2021; Coffield, 2000; Eraut, 2000; Holmes, 2016; Livingstone, 2001; McDaniel, 2014; Schugurensky, 2000). Informal learning is similar to Gee's affinity spaces, where, in part, the dispensation of the learner drives the learning. For example, videogames arouse a player's curiosity to learn more and can potentially motivate informal learning skills of diverse skills among players of all ages (Lin & Su, 2020). Informal learning spaces play important roles in enriching students' learning experiences (Wu et al., 2021). A space where students can engage in independent and peer learning that is often unscripted (Keppel et al., 2012). Some of these studies also affirmed that informal learning is a different kind of learning regardless of where it occurs. Sefton-Green (2004) and Bennet (2012) argued that informal and formal learning overlap and that informal learning could occur in and outside of school. Arena and Schwartz (2014) further posited that formal learning and informal learning experiences could produce powerful learning outcomes when combined rather than having either of them stand alone. To test this hypothesis, college students enrolled in various introductory social science courses during a single academic quarter were examined using a variant of the videogame *Space Invaders*, called *Stats Invaders* (Arena & Schwartz, 2014). Arena and Schwartz (2014) developed the game to assess participants' intuitions about probability distributions by understanding an expository explanation and preparing students to learn statistical concepts that would have been difficult to teach using the traditional methods. Students were assigned to a no-game control condition or game play condition. Two groups of students played one of two versions of the game, and one group of students did not play the game. Subsequently, half of each group received expository lessons about statistics the other half did not. The

outcome was that the students who played the game and then read the passage learned more than students who only read the passage (Arena & Schwartz, 2014).

According to Holmes (2016), informal learning can mean one of several different things to people: "how we learn, where we learn, what we learn, or the relationship between the activity and what is valued as knowledge today" (p. 28). A formal learning space is often structured and has a top-down content delivery. On the other hand, informal learning settings are contextually situated and experiential such as the students' learning experience described by Arena and Schwartz (2014). Such a setting switches the role of participants (i.e., learners and teachers) from a rigid relationship to a uni-directional and reciprocal relationship, where everyone interacts throughout the learning process (Holmes, 2016), such as is found in videogaming.

Steinkuehler (2010) found an area of passionate interest in a male gamer Julio who has been continuously disengaged and failing his English language arts. However, the story became different whenever Julio's literacies revolved around his gaming interests outside of the classroom (Steinkuehler, 2010). He gained mastery of reading and writing and even authored three books while getting all the encouragement and support needed due to the practices of writing and sharing fan-fiction based on an individual's specialized game-based interests.

Game-Based Learning Versus Traditional Learning

The use of digital games in teaching and learning often referred to as serious games or game-based learning (Chen et al., 2020), has gained much attention in the past 20 years (Stiller & Schworm, 2019). Moreover, videogaming has been incorporated into learning systems to improve learners' literacy levels and problem-solving behaviors

(Cheng & Su, 2012; Taub et al., 2020; Yang et al., 2020). Such systems entail a game where course content for a particular subject is mapped in, thus creating a learning environment (Cheng & Su, 2012). The researcher further noted that it provided repeated self-learning and a platform for ongoing feedback and interaction among instructors and their students or peers (Cheng & Su, 2012). In addition, a recent study demonstrated that game-based learning environments increased student agency and led to better learning outcomes (Taub et al., 2020). The games simulated problems that students must solve in a limited amount of time, fostering critical thinking and problem-solving skills.

Also, Cheng and Su (2012) used a quasi-experimental research design to collect data from respondents using questionnaires and achievement scores from tests undertaken after game-based learning. The research found that game-based education was better by comparing the experimental group's results to those of the control group taught using traditional face-to-face methods (Cheng & Su, 2012). Nevertheless, the research did not consider other intervening factors like the prior knowledge respondents may have had on the topic tested. Also, the assumption that one mode of teaching should produce similar results is misguided, given that regardless of the method used, students have different learning capacities (Cheng & Su, 2012). The researcher should have used cohort studies for both the game-based learning and traditional face-to-face methods by administering questionnaires and tests to the same individuals over time (Van et al., 2017). It would allow for comparing individual records over time, and the levels of improvement can be compared to see which students recorded the most significant gains. This way, results would be reliable and possible to generalize.

Most importantly, the basic structure of videogames offers learners endless opportunities. Such structure includes game-based learning components such as rapidly analyzing new situations, interacting with other players, thinking strategically, and solving problems independently or collaboratively that learners need to interpret literacy in today's world (Lasley, 2017).

Critical Literacy Learning

Hence, videogames have been used to build learners' understanding of critical literacy instruction that allows them to hold critical perspectives towards texts and uncover the underlying messages (Bacalja, 2018; Hein et al., 2016; Lane, 2019), as the term *literacy* consistently evolves. Through experiential learning spaces provided by videogames, learners can identify the deeper meaning of texts in diverse, meaningful ways as they are encouraged to construct their understanding of particular events in the game and not solely rely on the intentions of the game builders (Bacalja, 2020). Videogames have been advanced to incorporate semiotic social spaces that build the player's confidence in reading text with a deeper meaning, including poetry, as they acquire the skills to see more than what is presented on the surface (Vazquez-Calvo et al., 2019). Narrative-driven games provide safe spaces for players to think and discuss literary moments, encouraging them to feel like writers and respond as critics (Hein et al., 2016).

A study scrutinized the effect of playing videogames on students' critical literacy that required them to play four different video games, including *Bully*, *Fable 2*, *Forza Motorsport 4*, and *Dungeon Siege 3* (Bacalja, 2018). Students were then required to analyze each game by explaining their text, visuals used, dialogue, and music using their

own words. A descriptive analysis between regular videogamers and non-players was done. Results indicated that gamers could navigate new spaces and create new understandings of different genre games with more ease than non-players (Bacalja, 2018). Hein et al. (2016) recognized that players have interests and values that significantly differ from those taught in traditional classrooms. Therefore, embedding videogames in literacy education will improve their academic performance as effective teaching (Hein et al., 2016). The study involved analyzing the effects of commercial-off-the-shelf games such as *Assassins Creed* and *Call of Duty* on young males' literacy skills compared to print literacies. Players were found to regularly engage in discussions before and after playing a videogame in which they analyze and critique the narratives and the game structures (Jones & Hafner, 2012). Hein et al. (2016) concluded that narrative-driven videogames are essential as they provide a socially acceptable and culturally relevant platform to modern-day living for young males to think critically about, discuss, and analyze literary moments. Generally, critical literacy provides the structure in which a learner can connect, interact, and critique a text to reproduce new meaning (Robinson, 2019). Considering these critical competencies' depth and complexity, learners must make sense of information and apply it to learning tasks (Laretive, 2019) in literacy. According to Laretive (2019), "finding information and reading is not sufficient of itself ... being literate... requires the ability to create, shape, and transform meanings" (p. 227).

Information Literacy Skills. Videogames are often used to improve students' information literacy skills, which enables them to research or find information, use information, organize it in a meaningful manner and communicate it effectively and ethically, which is essential for the acquisition of knowledge (Encheva et al., 2020;

Laretive, 2019; Laubersheimer et al., 2016). When playing videogames such as the *Assassins Creed*, gamers find their avatars and plot by analyzing the character's abilities, strengths, and weaknesses before selecting a single player from the group provided (Hein et al., 2016). Gamers must match the character's skill set to specific environments to succeed in gaming, which develops skills in making meaning from presented data and combining different pieces of information to make sense (Ostenson, 2013).

The efficiency of gaming in teaching and improving information skills contributed to creating InfoSkills2Go by a group of librarians, a website for practicing information literacy skills and concepts (Laubersheimer et al., 2016). The website is designed to award students badges and points whenever they complete a task, which acts as an incentive to complete more lessons in the future. In addition, Encheva et al. (2020) found that serious games were being used to provide reliable information for students to avoid fake content using *NAVIGATE*.⁷ The game-based learning approach was assessed, and results revealed that it achieved learning improvement among students by providing credible, valid, and reliable data to use in their academics (Encheva et al., 2020).

Khalid et al. (2019) used a different approach to analyze the impacts of videogames on students' information literacy by focusing on students from a private school and elite neighborhoods who had access to the latest educational videogames. The study used a phenomenological qualitative research design to collect data from participants through face-to-face interviews. The researchers found that videogames positively impacted information literacy skills as they promoted quick thinking (Khalid et al., 2019). Notably, they discovered that students who played videogames often

⁷ NAVIGATE is a learner-centered game-based project to improve students' competencies in recognizing fake content.

effortlessly searched, located, and evaluated information, especially those who consistently engaged in competitive games. However, the study lacked regular videogame players and relied on students' perceptions of videogames. Therefore, students are likely biased in their evaluation of videogames, seeing that many players prefer to spend most of their leisure time playing videogames and are unlikely to discredit or have adverse effects (Lu & Lien, 2020).

Videogaming and Learners' Behavior

Even though popular videogames are predominantly themed with violence, aggression, and reckless behaviors by the notable characters and require gamers to participate in the fighting, shooting, or killing of their competitors to win the game (Hartmann, 2017; Anderson et al., 2017; Dowsett & Jackson, 2019; Lee, 2020). Lee (2020) also claimed that violence in videogames affects individuals' social-behavioral patterns in aspects such as empathy, intelligence, aggression, and kindness. In comparison, Dowsett & Jackson (2019) found that competitive videogames increased aggression in players, especially when they lose. Nonetheless, Shoshani et al. (2021) affirmed that studies have failed to find such relationships between violent videogames and aggressive behaviors among gamers. Besides, such studies are inconsistent (e.g., Ferguson, 2015; Furuya-Kanamori & Doi, 2016).

Furthermore, the inferences made from the study by Dowsett and Jackson (2019) are not reliable, given that they used the Taylor Competitive Reaction Time Task, which has been found to have low validity. Lee (2020) mentioned that some violent behaviors among players, such as school shootings, are attributed to playing games such as the First-Person Shooter that are thought to engrain perpetrators' brains with violence to

solve challenges they face in real life. Again, Przybylski and Weinstein (2019) cautioned that gaming's aggressive effects might have been overstated as their study did not show actionable evidence that videogaming was linked to aggressive behavior in gamers.

Although it is worth considering that just as videogames help improve a learner's literacy skills, they can negatively impact, especially where the language and text used do not follow literary rules (Stufft, 2018).

Nevertheless, embedding videogames into teaching literacy skills will only be effective when stakeholders, including the teachers, policymakers, and students, perceive its benefits and work to prevent adverse effects. Chiong (2009) noted the importance of videogames and the media in addressing literacy challenges amongst populations in the United States. Videogames used in education should be designed to fit contemporary students' needs of the twenty-first era. Learners were found to prefer videogames they considered valuable, easy to use, personalized experience, and ability to provide learning opportunities (Bourgonjon et al., 2010). However, teachers have complex beliefs about videogaming as an educational tool. Unlike game-based learning, some still prefer traditional face-to-face teaching methods, emphasizing the human touch in education, where interactions are virtual with minimal human contact (Watson & Yang, 2016). Such perceptions create a barrier to game-based learning. Besides, teachers, policymakers, and students are influenced by parents' perception, which was affected by the learning opportunities, adverse effects of videogaming, experience, and the student's gender (Bourgonjon et al., 2011). Hence, each party needs to compromise and agree on how students should benefit from game-based learning to improve their literacy skills (Watson & Yang, 2016). Playing games has shown to promote gamers' acquisition of diverse

literacies via cognitive skills involving knowledge, processing speed, analogy, deductive reasoning, mathematical intelligence (Hisam et al., 2018), higher spatial resolution in visual processing, faster and more accurate attention allocation, enhanced mental rotation abilities (Granic et al., 2014) and so much more.

Cognitive Skills in Videogaming

Studies suggest that merely playing videogames increases players' cognitive abilities (Gnambs & Appel, 2017; Finke et al., 2018). As videogames are used for fun and leisure, they are also complex and involve several cognitive abilities (Gnambs & Appel, 2017). Finke et al. (2018), while interviewing and asking about experiences and motivations on what drives adolescents and young adults with ASD who play videogames as their primary form of leisure, found that playing videogames affected their thinking skills.

Videogames have been associated with various cognitive domains, such as boosting visual-spatial skills (Schmidt & Vandewater, 2008), selective attention, and task switching skills (Bavelier & Green, 2015; Strobach et al., 2012; Hartanto et al., 2018), increasing spatial skills (Murias et al., 2016; Sanchez, 2012; Shute et al., 2015; Uttal et al., 2013), improving perceptual speed and attentional ability (Chiappe et al., 2013; Stroud & Whitbourne, 2015), and expanding fluid intelligence (Basak et al., 2008; Drew & Waters, 1986; Shute et al., 2015). However, some studies showed no significant difference between gamers and non-gamers in terms of their cognitive gains, such as Colzato et al. (2013), Hambrick et al. (2010), and Unsworth et al. (2015).

Bediou et al. (2018) also noted that not all games have an equal impact on a learner's cognitive skills, stating that action videogames had significant differences with

other games, such as real-time strategy games (e.g., *Rise of Nations*), puzzle games (e.g., *Portal*), role-playing games (e.g., *World of Warcraft*), or fighting games (e.g., *Pac-Man* and *Space Fortress*). The action videogames, such as the first and third-person shooter games, were better at enhancing a learner's spatial cognition and top-down attention. Such studies demonstrate that videogaming is a diverse activity with games that vary widely. Nevertheless, one of the threats to the validity of the study is the small sample size of the participants in the intervention studies, which may not make the study generalizable (Bediou et al., 2018).

On the one hand, there have been growing concerns that there may be possible correlations between digital media use and attention problems in children and adolescents. Still, scholars have found a little positive relation between intense digital media use and mild attention among players. Besides, these findings have shown inconsistent evidence for a link between attention deficit hyperactivity disorder and the use of the media (Schmidt & Vandewater, 2008).

Conversely, a study on the relationship between addictive videogame playing behaviors among an adult population and attention deficit hyperactivity disorder found a positive association (Mathews et al., 2018). The study participants included 2,801 videogame players with a median age of 22.43, and the inclusion criteria were that all participants had attention deficit hyperactivity disorder. Using hierarchical multiple regression analyses of the different games they played, the study found that the type of game played did not increase or decrease participants' likelihood of developing addictive videogaming behaviors (Mathews et al., 2018). Also, neither age nor gender could predict videogame addiction (Kietglaiwansiri & Chonchaiya, 2018; Mathews et al., 2018).

Nonetheless, findings indicated that gamers with attention deficit hyperactivity disorder are highly susceptible to developing addictive videogaming and its adverse effects, such as restlessness and problematic play (Mathews et al., 2018).

Language Skills in Videogaming

One of the cognitive developments and therapeutic benefits videogaming offers to learners is the simulation of real-life events, such as language learning which applies to learning a specific skill (Griffiths, 2002, 2010). De Gortari and Griffiths (2015) and Horowitz (2019) identified the process as Game Transfer Phenomena (GTP). GTP occurs when gamers relate game elements to senses, activities, dreams, and thoughts (Horowitz, 2019). According to Horowitz (2019), videogamers could express GTP in the real world as they would in their virtual worlds. Gamers identified their use of strategic thinking and critical judgment of situations, and increasing their sense of intelligence. For example, some videogames developed gamers' language skills by incorporating the translation of languages such as Selo, which requires gamers to translate English to Spanish, or Nino, which involves Japanese translation to Catalan (Vazquez-Calvo et al., 2019). These videogames provide tools and resources for gamers to utilize alone or in collaborative groups that are encouraged to build content and reinforce their understanding of different languages through fan translation (Sauro, 2017). The games include natives of other languages and allow players to record their reading words or paragraphs from different languages and give their peers a chance to correct them. Activities in these games work around fan translation, which is common to all, reading, understanding, and paraphrasing the original texts provided in different languages, writing short essays, and preparing the translations for the same, and collaborative online tools to help one have a friend they can

practice their language skills with through communication (Sauro, 2017; Vazquez-Calvo et al., 2019). Thus, a learning environment is created in games that encourage the gamers to appreciate cultural diversity and break language barriers by understanding more languages. In demonstrating this, Nardi et al. (2007) found that learning complex games through chats were a valuable opportunity for gamers to learn diverse languages *while* investigating the learning culture in *World of Warcraft (WOW)*. Nardi et al. (2007) described learning from such interactions as natural, fluidic, and contextual.

Furthermore, Dongwan (2013) investigated learning interactions among eighteen English language learners (ELLs) and eight native English speakers in *EverQuest*. Findings showed higher comprehension rates of vocabulary words were recorded among players who played with native speakers. From a broader standpoint, Thorne (2008) examined game-related interactions focusing on an English native speaker and a speaker of Russian in *WOW*. Results showed a high degree of collaboration for language learning among these gamers in and beyond their gaming activities. Such contexts prepare gamers to be global professionals by improving their employability, given that most companies today have an international presence in countries across the globe (Burton et al., 2015). Additionally, appreciating diversity increases students' creativity and innovative bearings as they see and understand the world from a different perspective (Chopin et al., 2019; Lu & Lien, 2020).

Mora et al. (2016) assessed gaming literacy practices in second-language settings, focusing on how gamers use language to attain victory. Mora et al. (2016) also focused on socio-cultural factors that influence English language appropriation from gaming. The findings from the study indicated how gamers utilized English to succeed in their gaming

experience. The formulated research questions paved the way for the conceptual framework based on two significant notions: *city as literacy* and *language as victory*. The city as a literacy concept involved the idea of superdiversity, which was the only precise term elaborating the virtual spaces gamers operate in (Reinhardt & Sykes, 2014).

On another note, scholars found that Massively Multiplayer Online (MMO) videogames provide a socially suitable environment that increases motivation for language learning and socialization because of the high level of interaction and collaborative nature of such a community (Choi et al., 2020; Godwin-Jones, 2014; Jabari & Eslami, 2018; Lee & Pass, 2014; Thorne, 2008). Lee and Pass (2014) discovered that the game *Lineage 2* enhanced gamers' literacy skills in diverse activities like writing, presenting, poetry, and debating in an English language learning context. Also, gamers developed Spanish speech acts and German modal verbs while playing *WOW* (Lee & Pass, 2014).

In a different context, Corredor and Gaydos (2014) investigated how Massively Multiplayer Online Role-Playing Games (MMORPGs) shape second-language literacy within Latin-American communities. Thirty-two gamers were recruited to explore bilingual interactions made possible by videogames (Corredor & Gaydos, 2014). The study uncovered how videogames modified the way players perceive language learning and the rich patterns of second language learning, complex forms of code-switching, bilingual codes in producing fan fiction, and bilingual abbreviated languages emerging from their gaming activities (Corredor & Gaydos, 2014). These abbreviations included acronyms, such as *GM* for *Grand Master*, *BRB* for *Be Right Back*, and *WTS* or *WTB* for *Want to Sell* or *Buy*. In addition, there were acronyms coined based on English phonetics

(e.g., *Y* for *Why*, and *U2* for *You too*). Thus, Corredor and Gaydos (2014) established that videogames in language learning are critical and powerful educational tools that can produce a global and multilingual society.

Similarly, Li et al. (2014) scrutinized how ELLs engaged in second language literacies through the MMORPG game *WOW* in a Chinese-speaking community. Li et al. (2014) sought to understand what literacy practices male ELLs engaged in *within* and *around* the *WOW* game (within the game, e.g., seeking information online, and around the game means activities born out of the gameplay, e.g., communicating with other players about the gameplay in reality). In supporting eight ELL language learners in a Thai university, the *WOW* platform proved to be a safe virtual space where learners could boost their English fluency. Students were more active in using English while reading, writing, acquiring vocabulary, public speaking, and conversational skills in *WOW* (Li et al., 2014). The result indicated four principal literacy practices: information seeking, strategizing, problem-solving, and socializing (Li et al., 2014).

Executive Functions in Videogaming

Another critical thing to note is that executive functioning enhancements drive efficient language processing, evident in players' abstract use of language and skills like persuasion and debate and their language development, such as complex syntax (Turkstra & Byom, 2010). These executive function skills are prominent in learners' social conversations, spoken and written language, helping them succeed in their academic demands (Turkstra & Byom, 2010). Barbu et al. (2018) defined executive functions as "a set of higher-order control processes designed to ensure the adaptation of an individual to different environmental demands" (p. 115). Executive functions contain three sub-

components, including monitoring or working memory (e.g., the ability to monitor and to use (or to delete) information, response inhibition (e.g., the ability to discard irrelevant information), and cognitive flexibility, or cognitive shifting (e.g., the ability to switch from a mental set to another (set-shifting) within the demands of a particular situation (Barbu et al., 2018). Executive functions are critical high-order cognitive skills for goal-directed problem solving (Berthelsen et al., 2017). Learners are expected to apply their acquired literacy skills in the real world, which usually involves making decisions, solving problems, and well-informed risk-taking (Buelow et al., 2015).

Videogame-based learning has been reported to increase the executive functions in children, teenagers, college students, and learners with special education needs such as attention deficit hyperactivity disorder (Buelow et al., 2015; Durkin et al., 2015; Homer et al., 2018; Powers et al., 2013). Executive function skills are essential as they enable students to plan, monitor effectively, and control cognitive processes linked to many significant educational and developmental results (Homer et al., 2018). Powers et al. (2013) conducted meta-analyses of 72 quasi-experimental studies and 318 comparisons of habitual gamers with control and 46 true experiment studies with 251 comparisons using commercial videogames in training. The study sought to investigate the impact gaming had on the gamer's information processing skills by employing the random-effects model and found that videogames increased a gamer's information processing in both true experiments and quasi-experiments (Powers et al., 2013). However, quasi-experiments were more susceptible to bias as they yielded large effect sizes, while those from true experiments were negligible effects for executive functions.

Nevertheless, Buelow et al. (2015) disagreed on the size of videogames' effects on a learner's executive functions. The researchers carried out a study as they hoped to fill a research gap, as most studies focus on the effects of videogaming on the working memory instead of impacting the executive functions (Buelow et al., 2015; Durkin et al., 2015). Also, the predominant use of male respondents was noted as another research gap in understanding videogaming's effects. The study involved 228 undergraduate students (114 females) who played one of five different videogames, with 91 participants in the treatment or the videogame group and 137 participants in the no-game control group. The participants in the treatment group were randomly selected to choose one of five videogames to play actively for 30 minutes before the test. The games included *Call of Duty: Modern Warfare 3*, *Dead Island*, *LittleBigPlanet*, *NBA2K12*, and *Need for Speed: Hot Pursuit*. However, the control group did not play any game before the test (Buelow et al., 2015). The scores before and after the study were compared for the Wisconsin Card Sorting Task (WCST), the Iowa Gambling Task (IGT), and the Balloon Analogue Risk Task (BART). Results showed a significant improvement in cognition and no gender differences. Also, cognitive improvement was not a direct result of a single game feature but spread across the play components present in all the games. Nonetheless, the study used cross-sectional research that only gave a snapshot of the studied variables, ignoring the long-term effects that could be observed over time. Therefore, many scholars do not entirely accept the results (Homer et al., 2018).

In their study, Homer et al. (2018) investigated similar variables but over six weeks and predicted the effects of videogaming on a student's performance in the game. The study was purposive in selecting the *Alien Game* as it was explicitly designed to train

an executive function, the shifting subskill. Eighty-two respondents were administered the Flanker task, which measured inhibition, and the Dimensional Change Card (DCCS) task. Following this, they were required to play the *Alien Game* for 20 minutes every week for a consecutive six weeks and then given the shifting and inhibition measuring tasks again (Homer et al., 2018). A significant increase in DCCS was noted in the scores, while the Flanker task scores were predicted using the *Alien Game* performance. Thus, *Alien Game* was found to achieve its purpose in training shifting, which supports the argument that videogames can be practical teaching tools when intentionally designed to fit coursework (Homer et al., 2018).

Consequently, the researchers found that learners enjoyed their space and engaged in challenging, absorbing, and instructive games (Durkin et al., 2015). Besides, playing videogames was found to positively affect executive functions and their implications while considering the real world (Homer et al., 2018). Buelow et al. (2015) found that participants made better and more profitable decisions on the Iowa Gambling Task and a significant reduction in errors made in the Wisconsin Card Sorting Task (WCST), which enabled them to complete more categories. Findings from these research studies further emphasized the need for considerations when designing games intended explicitly for particular literacy capacity-building exercises (Durkin et al., 2015). Developing educational games that balance study, course content, information and communication technology, and entertainment will be a better and more advanced teacher's pedagogy that recognizes the evolving nature of technology and careers in the real world is a proactive measure for preparing students for the future (Tokac et al., 2019). It will also be easier to get students' cooperation when using game-based learning as most students

prefer to spend their leisure time competing or playing videogames compared to traditional instruction methods (Cheng & Su, 2012).

Learning Incentives and Attention in Videogaming

Still, part of the process of executive function skills is attention and a student's ability to multitask and self-monitor (Center on the Developing Child, 2014) to achieve a goal. Zelazo et al. (2016) described executive functions as the attention regulation skills that make it possible for learners to sustain attention, endure frustration, reflect on past experiences, and contemplate the outcomes of different behaviors. Hence, it is possible to establish that learning incentives and attention fall into these attention regulation skills. For instance, Vasquez and Ovalle (2019) affirmed that a group of 15 Bachelor of Art in English students' attention was retained effortlessly while using videogame-based activities. The students expressed through interviews and surveys that they found it easier to learn English because they were engaged and attentive throughout the exercises. In another case, Matern et al. (2020) tested the effects of playing videogames and gender on selective visual attention using a purposively selected 80 participants sample. The researcher used a computerized version of the 'Stroop' task and analyzed data using variance analysis (ANOVA). Findings indicated a statistically significant effect of videogaming as players showed advanced attentional skills compared to non-players, but gender did not impact selective visual attention. Such advanced attention skills are critical in the teacher's pedagogy as the student's interactions, environment, peers, and instructors become more effective (Matern et al., 2020).

According to Delacruz (2012), incentives (punishment or reward) are an approach for suggesting those behaviors that are either approved or disapproved by

members of a specific community. In videogames, incentives are intrinsically connected to gamers' performance and, most times, a part of the gaming activity (Delacruz, 2012). One of such incentives is feedback (Delacruz, 2012). For learning to be effective, feedback is crucial for learners to monitor their progress inside and outside the school world, which does not exclude virtual environments (Abrams & Gerber, 2013). Delacruz (2012) recommended using provided feedback through incentives to increase learners' more in-depth learning engagement and make performance criteria explicit to students. As a result, feedback has been established to enrich learning and behavior modification (Abrams & Gerber, 2013; Brand et al., 2016). The feedback loop makes instant and constructive feedback possible on why students made certain modifications and how taking such decisions would improve performance (Abrams & Gerber, 2013). As a result, students can monitor their progress and compare or balance out their levels with their peers' (Abrams & Gerber, 2013).

Meanwhile, creating a balanced cognitive complexity and introducing gaming levels were solutions suggested by a study that sought to evaluate the effectiveness of a level-based game-based learning system that incorporated a high school English Course (Yang et al., 2020). The study used a game-based learning system that included a situational cognitive complexity that made gradual tests for individual students depending on their scores by providing appropriate tasks. The learning environment created helped promote motivation and increase learning interest among students (Pichon et al., 2020; Yang et al., 2020). The study made inferences from an analysis of a student's perceptions, behavior patterns, and outcomes who were respondents in a quasi-experiment that involved everyday game-based learning that gave similar tests to all

students versus a cognitive complexity-based system (Yang et al., 2020). Results indicated that students using conventional or typical game-based learning had a greater likelihood of failing in the game recurrently, which dampened their enthusiasm and motivation to learn. Also, this study's findings can be used to offset the harmful effects of videogaming on a student's cognitive skills by improving all learners' experience as they learn using appropriate tasks for their levels (Yang et al., 2020).

By integrating learning incentives (such as feedback) and attention, videogaming challenges the players to improve their skills, providing levels that they have to succeed at usually better levels. It requires concentration and attention to detail for a player to move successfully from one level to the next, which they gradually develop (Chopin et al., 2019; Matern et al., 2020). A cross-sectional study by Chopin et al. (2019) found that players tend to develop and enhance their attention control and improve their perception. For instance, results indicated that the dorsal system and peripheral vision were enhanced in players, especially action game players, making them efficient in tasks that relied on these parts (Chopin et al., 2019). Players must have at least 20 hours of play for such effects as the current dose-response.

Nonetheless, not all games improve the attention of players. Research has found that players cannot sustain attention in a learning environment in some games, such as action videogames, because they need intense stimulation (Trisolini et al., 2018). Therefore, gamers must give their attention in a learning environment and sustain it throughout the learning period to improve their literacy skills (Chopin et al., 2019). Trisolini et al. (2018) used a questionnaire to form two groups in the study's 45 participants: action videogame players and non-action videogame players. The groups

were tested using cognitive tests. The analyzed results indicated a significant difference between action videogame players who had advanced attention skills initially but could not sustain it without intense stimulation causing their performance to drop.

Under other conditions, non-action videogame players have maintained their attention to the end, which led to the study's inference that action videogames negatively influence students' attention (Trisolini et al., 2018). For the most part, videogames have been thought to be the most psychologically absorbing event for mental functioning (Choi et al., 2020; Hisam et al., 2018) and social well-being (Bailey et al., 2006; Halbrook et al., 2019; Harrington & O'Connell, 2016; Loksa & Martoncik, 2016). Thus, videogaming is increasingly becoming not only a vital form of entertainment but has a significant impact on social and cultural aspects of societies (Maskeliūnas et al., 2020) as well. There have been notions that gamers usually spend most of their time in a sedentary state, seated in front of a television or computer screen playing, thereby isolating themselves socially (Király et al., 2017; Kracht et al., 2020; Morita et al., 2016). However, Granic et al. (2014) held that videogaming has immense potential that, if exploited, can teach new forms of thoughts and behavior, a gap that can be utilized to address the mental health problems experienced in modern society. One of such possibilities is social skills (Granic et al., 2014). Social skills are also evident in civic engagement (the ability to lead a cause). The study revealed that players engaging in gaming are more likely to participate in social and civic movements in their lives (Granic et al., 2014).

Social Skills in Videogaming

As videogames create the platform to engage players in playful activities for leisure, they are also designed to promote and enable interaction among gamers, establishing a unique environment exemplified by social play and friendship development (Kowert et al., 2014). For instance, Kowert et al. (2014) found players discussing offline issues that had not been shared with pre-existing social contacts online. These are the prosocial skills gamers acquire during gameplay, which Granic et al. (2014) said might extend to their peers and family relations outside the gaming context. In addition, players' engagement in a mutual, playful activity promotes social interactions between players and fosters the emergence of such friendship bonds (Kowert et al., 2014).

Social Interaction Skills: Race and Gender in Videogaming

Players' prosocial skills surpass the classroom to influence their perceptions of different races and genders, affecting their social interaction skills. A qualitative ethnographic study found that players naturalized racial stereotypes, and the races in the game were depicted as discriminatory (Darvasi, 2020). Some white gamers were developing tendencies to commodify blackness. The representation of different races in player-controlled games is biased, with more than 50% of the players being White, and the remaining percent is unequally representative of the other races. In a qualitative study, Darvasi (2020) noted that the game characters fulfill societal stereotypes associated with races as Black characters are in sport, speak in slang, are low-class citizens, or are involved in gangs, while White characters are depicted as unhygienic and are middle-class citizens (Via, 2016). A positive relationship was found between the interaction between people in real life and the stereotypes they were exposed to in the

videogames because of the Proteus effect. The misrepresentation of different races, ethnicities, and genders has caused scholars to discredit videogames as a media tool that reinforces racial discrimination among young gamers.

In contrast, another study perceived videogame as a solution to promoting diversity and equal racial representation (Martínez et al., 2018). Martinez et al. (2018) noted that despite oversimplified conventions of culturally significant figures such as the spiritual shaman of the Native Americans, videogames have an excellent platform to reach millions and create racial awareness among future generations by ensuring racial inclusivity and subverting racial stereotypes. Creating an inclusive culture and relating to different personalities are at the core of emotional intelligence (Emotional Intelligence and Diverse Institute, 2016; People builders, 2021).

Emotional Intelligence and Social Perception Skills in Videogaming

Literacy involves successful interaction with peers and teachers, which requires emotional intelligence (EI) and social perception (Stauch et al., 2018). David et al. (2018) claimed that it is significant for players to understand emotions. It will enable them to improve their social skills, have better mental health, and perform better in their academics. Emotional intelligence allows individuals to monitor their emotions and others' emotions. As a result, they can correctly label and differentiate them appropriately, thus using personal information to guide thinking and behavior (Cejudo et al., 2019). EI has significantly increased adapted behaviors, such as higher quality social relationships, longer retention, prosocial relationships, better academic performance, and better mental health (Palomera et al., 2008). *EmotivaMente* (a school program) was designed using videogames as experience-based learning tools to boost EI skills in

adolescents (Carissoli & Villani, 2019). The study used a pre-/post-test follow-up quasi-experimental design to evaluate the emotional intelligence of 121 males in an experimental and a control group. Results showed that videogames could help players improve their emotional skills if incorporated into the curriculum with a guided framework (Carissoli & Villani, 2019).

Besides, videogames have been used as an educational tool to teach social skills to players, including those with autism spectrum disorder or intellectual disabilities (Carter et al., 2014). The games are used to build or enhance social perception, which involves identifying and utilizing social cues or stimuli in one's environment, such as another person's behavior, discriminating the relevance of a catalyst according to the context, and differentially reinforcing the affective behavior of others (Stauch et al., 2018). For example, a video-based group instruction was used to teach some targeted social perception skills among five students with autism spectrum disorder and intellectual disabilities. As a result, students acquired social perception skills, which supports the theory that video game-based group instruction is an effective way to help learners with autism spectrum disorder (ASD) and intellectual disabilities acquire and maintain social perception skills (Stauch et al., 2018).

A three-year ethnographic, phenomenological study investigated young males, and it was found that commercial-off-the-shelf games influenced their social and technical skills development. The ethnographic research was interpretive and used thematic analysis as the study found through developing "Playcology" how young males perceived their experiences with *Call on Duty* (Engerman, 2016). Also, Finke et al.

(2018) examined 10 18–24-year-olds with ASD who indicated that they would not have a social life at all if it were not for videogames.

‘Feeling Better.’ David et al. (2018) investigated a mini videogame named *Feeling Better* used as a resource activity in an online therapeutic platform for coaching the difference between functional and dysfunctional emotions in children and adolescents. Using a purposively selected sample of 22 participants, the researcher indexed emotion understanding by the number of times a participant correctly identified and collected functional emotional skills. The study results indicated that *Feeling Better* could improve in-game emotional understanding among players as it can lead to a significant improvement in their ability to identify and collect functional emotions (David et al., 2018). However, the study required participants to play at least three times before taking the test, which causes doubt about whether they understood the emotions or simply mastered them through repetition. Also, it was not accessible from studies to tell the exact extent to which videogames played a role in helping players understand feelings (Kaur, 2017).

‘Spock.’ By comparison, Cejudo et al. (2019) experimented with assessing how videogame *Spock* improved adolescents' emotional intelligence and psychosocial adjustment using a quasi-experimental research design. The study used participants aged 17 and 18 who were studied as a cohort of 92 participants and found online game-understanding emotions and videogames. In addition, the cohort was subjected to Trait Emotional Intelligence Adolescent Short Form, Behavior Assessment System for Children, and Self Report of Personality measuring instruments administered, and scores recorded before and after playing *Spock* (Cejudo et al., 2019). The study validated the use

of *Spock* as a valuable tool for improving emotional intelligence as results that were analyzed using the analysis of variance (ANOVA), and covariance analysis (ANCOVA) confirmed improved emotional intelligence (Cejudo et al., 2019). Besides, players understood better adaptive skills, problem externalization, and personal adjustment after the program. In light of this development, videogames are useful intervention tools to teach and improve emotional intelligence in the gaming community.

Contrary to the claims that increased videogaming negatively impacts academic achievement, findings showed that such claims remain inconclusive and too weak (Drummond & Sauer, 2014). Drummond and Sauer (2014) found that videogames do not negatively impact players' performance in science, mathematics, or reading while examining data from over 192,000 students in 7,423 schools within 22 countries. The result revealed little or no relationship between students' performance in these courses and their videogame exposure, which leads to the next topic, Academic Performance and Future Careers.

Academic Performance and Future Careers

In surveying Six hundred and seventy-one college students on their videogame usage and academic performance, Burgess et al. (2012) found a negative correlation between videogame play and college grade point average, with a higher relation for males than females. Also, over twice as many males than females played videogames for more than 10 hours a week (Burgess et al., 2012).

Likewise, a 1-year longitudinal study examined 477 male participants' videogame usage and videogame addiction among first-year students at a liberal arts college (Schmitt & Livingston, 2015). Results showed that videogame addiction

negatively correlated with expected college engagement, college GPA, and drug and alcohol violations occurring during the first year of college (Schmitt & Livingston, 2015).

On the other side, through qualitative case-study research, Gerber et al. (2014) examined the impact of commercial off-the-shelf (COTs) videogames on students when obtained through connected learning. Building on the prior knowledge of the students' gaming experiences, Gerber et al. (2014) engaged the students for 18 weeks in a writers' workshop, where they learned and understood COTs games-based reader, exposition writing, plot, characterization, and others. The findings showed that students thrive in a learning environment where they can self-select, co-construct, and own their learning experience individually.

Fédération Internationale de Football Association (referred to as FIFA onwards) has been used as a news literacy game that provides gamers with information about different football teams and protects them from the rampant fake news circulating the digital world (Kostopoulos, 2020). The games have pop-up notifications and adverts that interact with providing facts about different science, technology, engineering, and mathematics (STEM) (Ball et al., 2020; Sweeny, 2017; Yang, 2019). Regardless of the growing demand and lucrative nature of STEM careers globally, there has been a significant shortage of professionals in these fields (Ball et al., 2020). Videogames are successfully being used to increase students' confidence in pursuing STEM-related careers by building their self-efficacy and ensuring they are comfortable using information and communication technologies (Yang, 2019).

Are the Girls Left Out? Videogames also help girls, who are usually underrepresented in STEM fields, prepare early for careers in these fields (Hughes,

2017). The underrepresentation of women in these fields has been attributed to the games they are exposed to in their earlier years, whereby society has set it that females and males play with different types of games that provide different learning experiences (Milgram, 2007). For example, females are encouraged to play “house” by giving them dolls and dollhouses, emphasizing relationships, drawing and painting art, and highlighting creativity (Milgram, 2007). On the other hand, males play computer and videogames, or games that emphasize building, which improves their problem-solving skills, spatial-relationship, and hands-on skills (Milgram, 2007). They also gain spatial-relationship skills and confidence in the use and interaction with computers, enhancing their chances of pursuing STEM careers in the future as they feel comfortable (Paul, 2013). Even though girls are discouraged from playing computers and videogames by design, since most videogames have predominantly male themes and characters (Milgram, 2007), Paul (2013) advised girls to play more videogames to close the spatial-skills gender gap. Also, researchers perceived most videogames as sexist (Begue et al., 2017; Easpaig, 2018; Fox & Tang, 2014). The stories usually revolve around a male character, and women in the video are objectified and portrayed as weak and in need of a male rescuer (Gabbadini et al., 2016). Notwithstanding, 3D videogames improve gamers' visual-spatial skills. It is recommended for females to help build their confidence in pursuing STEM professions by developing crucial competitive skills they can rely on in the future (Paul, 2013).

One of the twenty-first-century literacy skills learners acquire from videogaming is collaboration skills (Alexander, 2009; Bailey et al., 2006; Hewett et al., 2020; Qian & Clark, 2016; Vlachopoulos & Makri, 2017; Zea et al., 2009).

Collaboration

“A focus on creativity, critical thinking, communication, and collaboration is essential to prepare students for the future” (Shulsky et al., 2017, p. 55). Videogaming has impacted players’ lives within traditional learning environments like classrooms and out-of-class experiences. Players form groups to express themselves and be creative as they share ideas with peers from across the globe. Such groups include the visual culture learning community manga and cosplay, which are collaborative platforms. Karpati et al. (2017) sought to analyze these informal learning environments through interviews, participant observation, and media analysis. The study showed that the platforms were collaborative spaces that inspire players to be creative and receive peer mentorship to improve their skills and boost their self-image and self-esteem (Karpati et al., 2017). Besides, such platforms create opportunities for global networking for players as they share knowledge and visual repertoires. Niemeyer and Gerber (2015) used a multiple case study design to explore the digital maker culture phenomena, using five participants to create walkthroughs in *Minecraft*. Findings indicated that collaborative informal learning environments were significant because they fostered classroom participation.

Furthermore, a multi-case ethnographic study examining players’ experiences with videogaming found that they gained and practiced their collaborative efforts and meaning-making skills through metacognitive literacy skills (Lane, 2018). The study involved four males in the community center and two others from an after-school videogame club who were observed, and data was collected for analysis. The researcher inferred that their videogaming experiences increased their knowledge of culture, innovation, strategizing, and decision-making (Lane, 2018). However, the

generalizability of inferences is limited since the research sample was not representative and was small.

Additionally, archaic videogames recast literacies research around learning with three types of spaces, including at-the-table, in-game, and beyond-the-game literacies. Analog games differ from digital methods because a recast of diverse books and objects like cars encourages reading and communicating and helps gamers to understand contemporary literacies and their temporal or spatial attributes (Garcia, 2020a). They foster environments in which open discussions are encouraged, and at times, gamers engage in productive conversations during gaming sessions. It is therapeutic and reduces feared risks of problematic videogaming like depression and anxiety. A research study provided evidence of therapists taking advantage of this aspect in videogames and aligning it with traditional therapeutic techniques to improve their mental and behavioral health (DeRosier & Thomas, 2018).

As learners engage in these social interactions online via videogaming, Alvermann (2008) has called for additional studies to examine the literacies ingrained in such spaces. This is especially true with the increased use of multi-user virtual environments (MUVES) and massively online role-playing games for collaborative learning (Whitton & Hollins, 2016) in these spaces. Regardless of their physical distance, gamers can learn together, assess artifacts, and share their work across sites (Magnifico et al., 2013). These occur in a conceptualized term called the affinity spaces (Gee, 2004).

Affinity Spaces

Though the internet is porous and can be distracting, with much misinformation wrecking several social media sites, it also serves as a trajectory through which learners can learn quickly and effectively (Gee, 2018). Therefore, the most compelling, engaging learning opportunities are found in the affinity spaces (Gee, 2018). *Affinity spaces* can be defined as avenues for individuals to connect with others based on a shared passion, ideas, values, and activities, irrespective of class, race, culture, ethnicity, gender, or disability (Gee, 2018). The concept of affinity space juxtaposes Lave & Wenger's 1991 notion of the *community of practice* (CoPs), which focuses on the communal aspect rather than the common interest (Gee & Hayes, 2012). CoPs emphasize expertise and entry into an affinity space through a single portal, e.g., an online discussion board.

In contrast, the affinity spaces give access to people through various outlets to interact with the content and produce new knowledge ranging from newbies and novices to experts level (Albers et al., 2016; Lammers et al., 2012). In other words, teaching and learning are not confined to a site or an individual. However, they are distributed across different sites, locations, and activities for diverse kinds of people in these places. This way, people can go beyond time and space (Gee, 2018), and instruction can occur from in-person to a blended format (online and face-to-face) (Gerber et al., 2017). Examples of these locations include Twitter, Facebook, blogs, Redditt, Wikispaces, Tumblr, fan fiction sites, and others. Innumerable social interactions and topics occur daily in the groups, ranging from asking questions, adding new information, tutorials, contributing to knowledge, helping each other solve a problem, to generating new knowledge (Gee & Hayes, 2012). One of such affinity groups is occupied by videogamers (Gee, 2007, 2017,

2018). According to Gee (2018), gamers do not just play games but move within virtual spaces that are part of a larger affinity space, taking their game-based learning into several other sites “such that it becomes a truly socio-cultural experience” (p. 10). For instance, Gee (2018) described how a player, Alex, could maneuver through the game, *The Sims* to write, edit, create graphics with images and text, link her stories and websites to other *Sims* fan sites, and respond to fans through diverse portals. Gee and Hayes (2012) also discussed how a *Sims* affinity space carved out for fan fiction might link to individual authors’ websites where people can access detailed information about the authors and their books. The growth of several virtual gaming communities has further endeared the young populace to using technologies for learning (Whitton & Hollins, 2016).

Virtual Gaming Community

Multi-user virtual environments, such as *Second Life*, massively multiplayer online role-playing game (MMPORG)- *World of Warcraft* (WoW), *There.com* and *Uru*, *Everquest*, and *Dreamscape* have been phenomenal in transforming the virtual gaming space. This is mainly with the advent of the massive multiplayer online role-playing game (MMPORG) *WOW*, available in different languages (Boellstorff et al., 2012). Nardi (2010) provided a wealth of information on WoW- a visual, performative medium that gives players a sense of autonomy, empowerment, and creativity using digital technology. *WOW* is a platform where players communicate through text chat and voice and converge in “guilds or clubs that provided a cohesive social experience” (Boellstorff et al., 2012, p. 12). Investigating the United States and China culture, the author drew

from Dewey's activity theory to reveal the aesthetic experience ingrained in gaming and play.

Play. Playing is a part of the developmental process that aids in learning social rules, communication, and relational skills in children and young adults, as most games mimic real-life situations (Király et al., 2017). Traditional games are especially embedded with songs and activities that inform students how to behave, speak, and even read, improving their literacy skills such as communication (Cheng & Su, 2012). Also, traditional games required face-to-face interactions, as players had to be physically available, which led to the development and growth of friendships and relationships. However, modern gaming, primarily online videogaming, does not require individuals to be physically available as they can access the play platforms wherever they are located (Gleason, 2016). It allows gamers to interact through a chat room or connect through online media to engage in information sharing, friendship, and education. Such social interactions should be encouraged as the learner accrues many benefits, including emotional, cognitive, and social services (Marino et al., 2019). Lenhart (2015) also noted that players form lasting friendships through videogames, which prevents them from engaging in destructive behaviors such as substance use. However, Coleman (2019) disagreed with the purported benefits claiming that gamers interact with strangers from across the world, exposing young gamers to toxic adults and peers who may take advantage of them through cyberbullying and harassment.

In another study, Moffet (2016) noted that as much as social media and technological communication devices had revolutionized communication, people are now lonelier than before the technological age. Such inferences are informed by the nature of

online communities and interaction platforms, including videogames. The unspoken default rule is to present your ideal self without dragging your problems into the media (DeLisi et al., 2013; Wang & Wang, 2019). A fear informs these decisions of being alone since people have changed the social perceptions and interpretations of terms like friendship, whereby it is possible to have a million 'friends' online and no real-friend in real life (Arnd-Caddigan, 2015).

On the contrary, Snodgrass et al. (2018) found that videogamers use gaming as a psychosocial way to compensate for loneliness through a qualitative study that used interviews to collect data from 20 key informants. Furthermore, an online survey was used to collect data from 3,629 participants. The study used the social signaling theory to test the hypothesis that lonely individuals intensively engage in videogames (Snodgrass et al., 2018). The gaming community has created an *insiderness* that provides gamers with a sense of belonging and social inclusion, which accrues great psychosocial benefits (Lee et al., 2018). Ironically, the study found that gamers diagnosed with gaming addiction benefited the most from the gaming community (Snodgrass et al., 2018). One of these gaming communities where gamers can access play via streaming services is cloud gaming (Bose & Sarddar, 2015; Shadow, n.d).

Cloud Gaming

Though the concept is not new (Bose & Sarddar, 2015), cloud gaming has emerged with the proliferation of computer-mediated communication and diverse Web 2.0 tools and cloud computing (Cai et al.; 2016; Biradar & Nagoor, 2017; Panchal et al., 2017). Cai et al. (2016) described cloud gaming as “a new way to deliver high-quality gaming experience to gamers anywhere and anytime” (p. 7605). To meet the demands of

growing subscribers and to ensure a good user experience for gamers (Yao & Chang, 2015), players can easily access their favorite games anywhere and at any time through cloud gaming (Biradar & Nagoor, 2017; Cai et al., 2016; Huang et al., 2013). In its simplest form, Shea et al. (2013) defined cloud gaming as a platform that offers “an interactive gaming application remotely in the cloud and streams the scenes as a video sequence back to the player over the internet” (p. 16). Succinctly put, a game app/game is installed or connects remotely to a central server in place of a local hard drive where most applications are stored, which is liable for the videos the client or game player sees or views. To further break it down, Parrish and Roach (2021) recommended that there be no need to download or install games on a personal computer (PC) or console; streaming services, through a high-speed connection, can send gaming information to application software or browser installed on the user’s device. It also means that the recipient does not depend on a particular type or quality of gaming hardware but can use common devices (Jarschel et al., 2013), such as smartphones, tablets, desktops, laptops, and others. Having described what cloud gaming is, a brief history of cloud gaming is discussed next.

A Brief History of Cloud Gaming. The first cloud gaming technology was developed in 2000 by G-cluster (Cai et al., 2016; Panchal et al., 2017). Then, in 2005, videogame developer Crytek commenced the research on a cloud gaming system for Crysis, but this was discontinued in 2007 to allow infrastructure and cable Internet providers to complete the task (Cloud gaming, 2021; Panchal et al., 2017). After that, OnLive was launched in March 2010, which Sony acquired in April 2015 to create PlayStation Now (Mangalindan, 2015; D’Argenio, 2018). Next was Gaikai, launched in 2012, focused on using cloud gaming services as a form of online advertising for games,

which Sony acquired (Cai et al., 2016; D'Argenio, 2018; Panchal et al., 2017). And then, Nvidia was introduced in 2013 and rebranded as GeForce Now (Cloud gaming, 2021; Mangalindan, 2015). Today, there are waves of newer cloud gaming services such as Google *Stadia*, unveiled at the Game Developers Conference (GDC) in November 2019, Microsoft's xCloud on September 15, 2020, and Amazon's recently announced Luna on September 24 (Cloud gaming, 2021; Mangalindan, 2015).

Summary

This chapter presented the literature review process, which included the seven steps needed to understudy a comprehensive literature review to generate a literature report based on the study concepts and existing literature. I discussed the theoretical framework for the study (i.e., layered literacies and the feedback loop), and I have provided the literature relevant to understand better the phenomenon, such as Literacy, which includes sub-sections like a brief historical overview of literacy, literacy, multiliteracies, literacies practices, videogaming and literacy, adolescents and gaming practices, videogames, adolescents, and literacy, the literacies in gaming, and videogaming types (e.g. serious games, educational games, and gamification; Game-based learning (including sub-themes: informal learning and gaming, game-based learning versus traditional learning, critical literacy learning, and videogaming and learners' behavior); Cognitive skills in videogaming, such as language skills in videogaming, executive functions in videogaming, learning incentives and attention in videogaming; Social skills in videogaming (these include social Interaction skills: race and gender in videogaming, emotional intelligence and social perception skills in videogaming; Academic performance and future careers; Collaboration, and affinity

spaces (e.g. virtual gaming community and cloud gaming). In the next chapter, I will discuss the methodology which frames this study.

CHAPTER III

Research Methodology

The purpose of the study was to understand a complex phenomenon: studying the Crayta community within the *Stadia* culture to understand males' literacies that are rooted, specifically in commercial-off-the-shelf gaming (COTS) videogaming. As a result, a virtual ethnographic research design was adopted for the study (this will be discussed later in the chapter). To further ground the research, the methodological framework continues to build on Leech and Onwuegbuzie's (2010) 13-step methodological framework for a qualitative study, as discussed in chapter 1. Hence, in this chapter, I will discuss the research methodology divided into several sections. The sections address step 6- selecting sampling framework; step 7, selecting research design; step 8, collecting data; and step 9, the data analysis process.

The research questions in an ethnographic study can also be broad and emergent, shaped by the discoveries that an ethnographer finds on the fieldsite (Boellstorff et al., 2012). As such, "ethnography is thought as one of the most open of research approaches, which adapts itself to the social situation it finds" (Boellstorff et al., 2012, p. 53). Of course, this does not mean that ethnographers wander on the fieldsite without purpose, but an ethnographer must be willing to modify research questions based on what they find in the field (Boellstorff et al., 2012). To this end, the following research questions guided the study:

1. How do males aged 18-30 engage in literacy practices through play and game creation on Crayta within the *Stadia* videogaming community?

2. How do male gamers layer their literacies and employ the four components of the feedback loop while playing Crayta within the larger *Stadia* culture?
3. How do males practice their literacies through play and game creation on Crayta within the larger *Stadia* culture?

Step 6: Selecting Sampling Framework

In qualitative research, it is imperative that before selecting a sample, the researcher must first determine the objective of the study (Leech & Onwuegbuzie, 2007a). This study explored the literacies male gamers aged 18-30 engaged with on Crayta within the larger *Stadia* culture. The goal was not to generalize the study but to gain insights into the topic and contribute to understanding the theoretical framework applied in the study (Etikan et al., 2016; Leech & Onwuegbuzie, 2007a). Also, the participants and context were intentionally chosen to maximize the understanding of the situation. Leech and Onwuegbuzie (2007a) argued further that if the purpose of the study was to generalize the interpretation of the study to a population, the investigator should opt for a large and random sample. Therefore, for this study, a non-random snowball sampling technique was employed. Snowball sampling, also known as network sampling, is a purposeful method of sampling in qualitative research (Leech & Onwuegbuzie, 2007a) and requires the researcher to access “informants through contact information that is provided by other informants” (Noy, 2008, p. 330).

In a non-random sampling, there is no need for fundamental theories or a determined number of participants. Instead, the researcher sets out to find people with common characteristics and a wealth of experience and knowledge to provide rich and relevant information for the study (Etikan et al., 2016; Suen et al., 2014).

The study population was male gamers between the ages of 18-30, and this age falls into the group Ingraham (2017) revealed is spending more time playing videogames. According to the writer, the number of players aged fifteen and older playing videogames shot up to over 11% more than in previous years (Ingraham, 2017). In addition, the Des Moines Register (2018) reported that males aged 21 to 30 increased their leisure hours and spent more time playing videogames. Finally, these demographics were chosen because research suggests that males highly engage in videogaming more than their female counterparts (Cummings & Vandewater, 2007; Duggan, 2015; Nuyens et al., 2019; Statista Research Department, 2021).

Setting and Population

Stadia. Stadia, launched on November 19, 2019, is a cloud-native game platform developed by Google. The platform is accessible via the Google Chrome web browser on personal computers, smartphones, Chrome OS tablets, and Chromecast for TV support. The app is also downloadable on Android devices. The ‘State Share’ feature allows gamers to collaborate and share with friends. Players can also stream or record their sessions atop YouTube through Stadia. Games on Stadia include but are not limited to *Gylt*, *Get Packed*, *Lost Words: Beyond the Page*, *Resident Evil*, *Destiny 2*, *Human Fall Flat*, *Orcs Must Die*, *Grid*, *Farm Simulator*, *Dead by Daylight*, *Cyberpunk 2017*, *Embr*, *FIFA 21*, *Orcs Must Die 3*, *Player unknown’s Battlegrounds*, *Figment*, *Division 2*, *The 80’s Suitcase*, *Immortals Fenyx Rising*, *Celeste*, *Super Bomberman*, *Football Manager*, and *The Elder Scrolls Online*.

Crayta. Crayta is a Roblox-esque gaming community published and developed by Unit 2 Games. The videogaming platform was launched on *Stadia* in 2020 and was

recently acquired by Facebook gaming to provide ease of use and access to players. Crayta is a collaborative game creation and publishing platform that brings together players of all ages, regardless of their abilities and backgrounds, to make, collaborate, publish, and share multiplayer games without having specialized skills or knowing how to code. Players get to create real-time collaborative game creation with up to 20 friends per session and can publish games instantly for anyone to play. If players are creative, they can build worlds. If tech-savvy, they can code worlds, and if neither, they can play in worlds created by others. Worlds in Crayta are created from voxels. In addition, there are video tutorials on making games in basic mode, obstacle game mini-series, programming, using packages, level creation, scripting guides, and publishing games. Once in the game, players can access an expansive range of resources to create unique games, such as meshes, shapes, emotes, patterns, materials, map templates, lighting, shapes, textures, sound, and others.

Step 7: Selecting Research Design

The study was a blended research design—a qualitative ethnographic-case study, specifically virtual ethnography. First off, a qualitative study fits best when the research describes a phenomenon by depending on the insights of people's experiences in a given context (Stake, 2010). Since the purpose of the study was to explore the culture and experiences of a young male gamer, including perceptions, a qualitative approach was the most suitable choice.

Second, because I am focusing on a particular culture, such as the Crayta community in the larger *Stadia* gaming community, I chose ethnography to describe the gamer's complexities and shared cultural nuances as they occurred naturally.

Furthermore, this approach was well suited to answering the research questions appropriately and adequately. Besides, since crafting a research question in ethnography is often linked to exploration (Boellstorff et al., 2012), inquiry questions such as “what” and “how” are explored best using an ethnography study (Creswell & Poth, 2018).

What is Ethnography?

Ethnography is learning about a culture-sharing group through immersion (Jones & Smith, 2017) and interpreting or understanding people’s shared patterns of behaviors, values, culture, beliefs, and language that develop over an extended period (Creswell, 2008; Creswell & Poth, 2018). In simple terms, ethnography is the study of people within the context of their culture. A qualitative study may include participant-observation in which the ethnographer “enters the spaces of their participants to gain insight into how people experience, perceive, create, and navigate the social world” (Hallet & Barber, 2014, p. 307). According to Reeves et al. (2013), *ethnography* is “a type of qualitative research that gathers observations, interviews, and documentary data to produce detailed and comprehensive accounts of different social phenomena” (p. 1).

Origin of Ethnography. Ethnography is traced back to the famous works of researchers such as Malinowski, Radcliffe-Brown, Boaz, and Mead in the early 1990s while studying small societies over a long period and documenting their belief systems (Creswell & Poth, 2018; Reeves et al., 2013). For instance, Malinowski described his experience with South Pacific Islanders by studying their behavior and language, thus becoming a part of the culture (Malinowski, 1922). The Chicago School of Sociology later embraced the ethnographic approach between the 1920s-1930s, which was applied to various present-day societal issues, including homelessness and immigration (Reeves

et al., 2013). According to scholars, ethnography evolved from social anthropology (Bloome & Beauchemin, 2018; Creswell & Poth, 2018; Hammersley & Atkinson, 1983; Hammersley, 2006), which is central to the study of culture and cultural behavior (Dharamsi & Charles, 2011). In essence, ethnographers do not test hypotheses, and neither do they rely on experimentation but develop explanations rather than predictions to understand a particular group of people (Boellstorff et al., 2012).

Ethnography and Virtual Worlds. The virtual world is a digital environment that visually imitates the complex physical spaces where people relate with each other and virtual objects (Bainbridge et al., 2007). Boellstorff et al. (2012) referred to the virtual spaces as bringing to play the cultures of the physical world in numerous ways at the same time and still creating opportunities for new emerging cultures and activities. This means that the physical and the digital are not mutually exclusive, which means they can occur simultaneously. Furthermore, the digital is an extension of the physical, and it provides opportunities to engage with data in multiple modes and at multiple levels (Hsu, 2014). Thus, videogames continually shift to deliver richer, interactive 3D content found in the virtual world (Scacchi, 2012). As such, many scholars are looking to the Internet to expand the scope of their research to explore the opportunities of such practices rooted in videogaming. Additionally, the digital platform provides an excellent opportunity to access naturally occurring practices possible in virtual spaces (Boellstorff et al., 2012).

Furthermore, moving ethnography online redefines the field because there is a combination of fascinating and unique expanded possibilities on the Internet to explore. The immediacy, accessibility, and continuousness of the expression of emotion are unmatched, unlike face-to-face communication or interaction, where exposure to these

expressive codes developed by users genuinely and spontaneously is not made possible (Bainbridge et al., 2007, Boellstorff et al., 2012; Hsu, 2014).

Ethnographic Case-Study. Ethnographic case studies employ ethnographic methods and focus "on building arguments about a cultural group, or community formation or examining other sociocultural phenomenon" (Schwandt & Gates, 2018, p. 234), which runs over an extended time through in-depth data collection. An ethnographic case study approach allows exploring actions, events, individuals, or groups to provide depth into the studied culture (Angers & Machtmes, 2005).

Of a similar approach, Gerber (2008) conducted ethnographic case studies, where she followed the new literacies use of four male gamers enrolled in English language arts in and out of school for a six-week grading period. Findings revealed that students were more critically engaged at home with literacy when gaming than in school because reading was always linked to other literacy strands, such as writing, speaking, viewing, listening, and presenting. Also, conducting ethnographic case studies in exploring the beliefs, contextual factors, and practices of three middle school teachers, Angers and Machtmes (2005) found how teachers' resilience, risk-taking, and flexibility led to the adoption of technology in the school curricula.

Furthermore, ethnographic case studies allowed Cozzolino (2014) to observe a small, public suburban high school in Pennsylvania. The researcher sought to understand the world where her participants lived, worked, learned, and experienced a large portion of their lives (Cozzolino, 2014). These examples above supported my choice of using an ethnographic case study. It allowed me to observe a male gamer's engagement in diverse literacies as they occurred in a natural setting. Besides, these studies are ethnographically

rooted through the triangulation of ethnographic data sources, including observations, prolonged engagement, interviews, and rich-thick descriptions of activities at the research site, similar to what I did in my study. Like Cozzolino (2014), from a philosophical lens of social constructivism, I perceive knowledge as being constructed through social interaction to interpret the culture and understand the cultural experiences of Crayta players within the Stadia culture.

Step 8: Collecting the Data

Procedures

Boellstorff et al. (2012) suggested that data collection in ethnography fieldwork involves bringing the artifacts, participant observations, interviews, and fieldnotes to life. Above all, Jacob and Furgerson (2012) outlined several types of data in qualitative research, divided into four categories: observations, interviews, documents, and audiovisual materials. Before beginning data collection, I obtained permission for the study's research from Sam Houston State University's Institutional Review Board. Once approved, I started the process of participant selection by sending out a flyer I had created to recruit potential participants from a Crayta Facebook group, with the permission of the group administrator, explaining in clear language the goal of the research, which yielded no result. Also, I reached out to potential participants on the Stadia/Crayta platform via chats/words of mouth to tell them to invite those interested in participating in the research, also known as snowball sampling. Initially, I had planned to recruit at least six participants, but I got one participant for the study. As part of the IRB protocol, I maintained the participant's confidentiality by keeping the informant's identity and confidential information private, concealed his identity, used pseudonyms, and obtained

informed consent when and where necessary. No interview was conducted without confirming the consent of the participant.

Instrumentation. For this research, the instruments for collecting data included observations, interviews, and artifacts.

Observation. Observation is a critical instrument for gathering data in qualitative research (Creswell & Poth, 2018). The design is characterized by immersion in the studied culture, yet the duration is not as long as full-scale ethnographic studies (Fusch et al., 2017). Hence, I spent approximately 24 hours of observation for the participant spread across three months, which did not last more than 2 hours per observation session. Naturally, some days I spent more time in the community, and some days I spent less time or no time. According to Creswell and Poth (2018), participant observation is a methodology in the qualitative study which aims to gain immediate access to a specific group of people (e.g., a sub-cultural group or a specific community) to study their behaviors through a rigorous engagement in their natural setting over a given period. Therefore, the method of participant observation was that of an observer-as-participant, and at a time, a participant-observer.

Emic/Etic Perspectives. Even though I became a member of the Stadia/Crayta community for the study, I still considered myself playing the 'outsider' (etic) and the 'insider' (emic) roles because I am neither a gamer nor do I belong to the demographics selected. However, assuming a dual role (Patton, 2002) and balancing the two roles supports a researcher's flexibility and also facilitates a "practical discussion of methodological adaptations that encourage emic perspectives throughout all phases of a study: design, data collection, and analysis" (Darling, 2016, p. 1). Also, these two

perspectives are part of any understanding (Olive, 2014); therefore, one is not devoid of the other. An etic perspective studies participants' behavior from outside of the culture. The emic perspective tends to capture things and events through the eyes of members of the culture being studied (Olive, 2014). I also believe that as a researcher, I took up an etic role as well, as I used pre-existing theories, "perspectives as constructs to see if they apply to an alternate setting or culture" (Olive, 2014, p. 5).

Observation Protocol. Also, the documentation described the physical setting, particular events, activities, and the researcher's actions, such as ideas, breakthroughs, confusion, personal reflections, insights, initial interpretation, and others. The protocol was in two sections: one column contained the demographic information, and the other column contained the reflections (see Appendix C).

Interviews. Qualitative researchers gather people's stories to gain insight into their lived experiences, and one way of doing this is by interviewing their participants (Jacob & Furgerson, 2012). Interviews offer rich details of participants' experiences, how they describe these experiences, and how they make sense of the experiences (Castillo-Montoya, 2016). According to Jacob and Furgerson (2012), "a good interview protocol is essential to getting the best information from participants" (p. 6) in any study for "consistency and flexibility" (Hunter, 2012, p. 1). Researchers recommended that a researcher be intentional about interview questions and ensure they align with research questions (Hunter, 2012; Jacob & Furgerson, 2012; Castillo-Montoya, 2016). The study's data collection process included semi-structured and unstructured interviews, which complemented the observations and artifacts collected for the study. Semi-structured

interviews combine structured and unstructured interviews; they allow flexibility and do not follow pre-determined order or answers to the questions being asked.

In comparison, the unstructured interview is the conversational style and most open-ended approach to interviewing participants. Questions flow as events and activities are naturally occurring. I conducted four interviews with the participant for this study, which took about 30-40 minutes. But not more than one hour per session for a total of 2-4 hours for four interview sessions. Out of the interview questions was only one semi-structured question, and the rest were unstructured—a general question for the participant and other diverse unstructured interview questions. Interviews were communicated to participants via encrypted e-mails, text messages, or chats. Also, there was an initial interview at the beginning of the study and a debriefing interview at the end of the study. Interview timelines were communicated to the participant and then scheduled.

Castillo-Montoya (2016) identified four types of interview questions: (a) introductory questions, (b) transition questions, (c) key questions, (d) and closing questions. Introductory questions elicit general and non-intrusive information about the participant's background, such as "Tell me more about your background." Transition questions link the introductory questions to the key questions, e.g., In your response, you said... can you please tell me more...? Key questions are questions that are most related to the research questions and the purpose of the study. For example, what makes you identify with that community? Closing questions are questions that are easy to answer and provide an opportunity for closure. For instance, before we conclude the interview, is there something about your experience that we have not had a chance to discuss that you would like to share? I built the interview questions following Patton's (2002) six model

types of interview protocol drawn from experience and background, opinion and values, feeling, knowledge, sensory, background/demographic questions (see Appendix B for the interview protocol).

Artifacts. Artifacts are objects created by humans. They provide insight into styles, preferences, customs, special occasions, work, and play of the culture in which it was created (New York University Libraries, n. d.). Video screen captures, screenshots, static images, recording on-screen behavior, stimulated recalls (Gerber et al., 2017) fall under this category. Virtual artifacts also include clothing, architecture, accessories, weapons, and others (Boellstorff et al., 2012). Data collection also included reflexive journals and taking fieldnotes.

Storing Data. I used an app that automatically turns voice into text *Otter.ai* for voice messages. Nonetheless, Boellstorff et al. (2012) had warned to use such programs with caution and verify their output by hand because they are not good at handling some words, slang, or different languages. Heeding the advice, I read through the transcripts line by line and found that most of the information was distorted, so I transcribed it by hand. Then, I sorted the data and arranged them in specific file destinations with different tags/labels to quickly identify them. These tags included artifacts, interviews, chats, and observations to find the materials I sought. Using direct quotes from gamers' interviews and informal conversations will provide the participants' perspectives (Creswell, 2012) and make them come alive (Boellstorff et al., 2012). Fieldnotes were organized in journals to keep track of the daily activities on the field with dates, times, and titles. Annotating fieldnotes were maximized to jog my memory and avoid losing track of important contextual information. My Android phone and Lenovo IdeaPad 330 Laptop

served as tools to capture images, screenshots, artifacts, and chat logs. I had exclusive access to the data collected (interviews, field notes, observations, artifacts). All files were transferred to a backed-up password-protected flash drive and laptop from the recording devices.

Role of the Researcher. The researcher's role in qualitative research is crucial, as he or she gathers data and works through the analysis process (Creswell, 2007). Hence, I played the role of an active observer rather than a participant. I assumed this role to observe the participants in detail, in depth, and in different situations (Moser & Korstjens, 2018). Also, I became the primary instrument of data collection, analysis, coding, and analyzing the data from interviews, observations, artifacts, and fieldnotes to reveal the concepts and patterns emerging from the study. Thus, this served as a potential bias for the study, which could jeopardize the findings, challenging my disposition of being too quick to dismiss data that did not fit the argument I was trying to build.

Nevertheless, monitoring and reducing these biases was an essential part of the whole research process, without which the reliability of the study is threatened (Capella University, n. d.). The use of memos (Birks & Mills, 2011), fieldnotes or scratch notes (Phillippi & Lauderdale, 2017), or epoche (Bednall, 2006), or what Fischer (2009) and Tufford and Newman, (2010) would refer to as bracketing was vital here in reporting and analyzing data, which aided me in being open and receptive to the data as much as possible. Bracketing refers to investigators' recognition of vested interests, cultural factors, assumptions, personal experiences, and feelings that can influence how they perceive data (Fischer, 2009). Fischer (2009) explained further that to view data freshly, these interests are placed in "brackets" or "shelved" for as much time as possible in a

study (Fischer, 2009, p. 583). To control the intrusion of biases, I kept a reflective journal throughout the process to archive my thoughts, feelings, and confusions, which would further document the relationship I had with the data and analysis.

Ethical Considerations

Boellstorff et al. (2012) claimed that no set of priori rules of ethics could predict the range of situations that may question the ethical principles while an ethnographer is out in the field. However, the sum is that an ethnographer must tread this path with care and caution. Setting or creating boundaries between the subjects and the ethnographer is crucial in ethnography (Boellstorff et al., 2012). Therefore, there was no researcher-participant relationship that could impact the study's bias in any way, such as conflict of interest, vested interest, and others. Also, subjects could choose freely to participate in the research or not (AcSS, 2013). I kept the participant informed about the nature and purpose of the study and protected their privacy as much as possible—for instance, there was no use of real avatar names or revealing identities such as faces or places.

Pseudonyms were used instead of real names. These measures enhanced openness, honesty, trust, respect, and consideration with which, as an ethnographer, I could deploy to gather information in the field I studied (Boellstorff et al., 2012). Also, considering that I was online and shifting across spaces, anonymity was not limited to characters only but extended to screen names and online locations (Gerber et al., 2017). I was also cautious not to use my real character's name and refrained from disclosing the server's name or the characters in the game (Boellstorff et al., 2012). Hiding identifiable names in videos, images, characters, or visual material is paramount. For instance, in one of my

artifacts, a character was moved and blurred out of view, as (Boellstorff et al., 2012) suggested.

Another thing noted was the issue of exception. By exception, Boellstorff et al. (2012) explained that there are some cases in that hiding or concealing names may be impractical because the contributions of such entities/personalities are too difficult to ignore as they help in framing the distinction of that particular culture. So, for example, in giving the best interpretation of the *Twitch* community, it became impossible for Taylor (2018) to anonymize the main platform of her research, *Twitch*, just as it was unrealistic for me to conceal the name of the core platform I studied, *Stadia/Crayta*.

Furthermore, there was no report revealing information that would potentially harm participants now or in the future (Creswell, 2012). Another essential aspect Boellstorff et al. (2012) discussed was to create the most accurate and fairest portrayal of the studied culture and people. Thus, the best thing I could do for the community I studied was to pay close attention to the details and nuances of their lives and experiences and give the best interpretation to portray the culture.

Step 9: Analyzing the Data

Data analysis in ethnography is not unidirectional, and it is not primarily about coding schemes (Boellstorff et al., 2012). However, it is about “finding, creating, and bringing thoughtful, provocative, productive ideas to the acts of writing by stretching our cognitive and perceptual horizons to encounter, absorb, and react to relevant literature and conversations” (Boellstorff et al., 2012, p. 159). The data analysis phase in an ethnographic study must be approached with flexibility, openness, and responsiveness because the value of data is linked to the contexts of its collection. Therefore, those

contexts cannot be known prior to analysis as they are culturally situated (Boellstorff et al., 2012).

Thematic Analysis

The primary focus of the study was to describe a particular phenomenon. Hence, the data analysis method I used for the study was Thematic Analysis. There are diverse ways of coding in thematic analysis, which makes it an idiosyncratic method for creating a rich and detailed data set (Braun & Clarke, 2012). Typically, thematic analysis is what the researcher thinks works best, and as Braun and Clarke (2012) attested, there is no prescription for coding. However, Braun and Clarke (2012) and Nowell et al. (2017) postulated six-phase thematic maps for developing analysis and identifying themes, subthemes, and interconnections between them in a data set. These six phases include: familiarizing yourself with the data, generating initial codes, searching for themes, reviewing potential themes, defining and naming themes, and producing the report, which is further expanded in chapter V. In coding the data, I employed Saldana's (2016) In Vivo coding (for the interview and voice chats) and descriptive coding for the observation and artifacts.

Coding Method. Saldana (2016) noted that data for coding in a qualitative inquiry could include interview transcripts, participant observation, artifacts, fieldnotes, photographs, videos, e-mail correspondence, and others. Coding in qualitative data analysis is words or phrases that cross the mind of researchers as they read the data. It “is not a precise science, but primarily an interpretive act” (Saldana, 2016, p. 5), which “is a researcher-generated construct” (p. 4), or the participant's inspired responses that translate the data. Furthermore, Saldana (2016) suggested several coding processes to

answer epistemological questions. According to the scholar, epistemological questions address theories of knowing and understanding the phenomenon of interest. For example, aligned research questions include “How does...?” (Saldana, 2016). This allows the exploration of participants’ actions, processes, and perceptions found within the data. Since the research questions that guided the study were crafted in the same manner, the selected coding methods I chose to capture and better reveal these experiences were In Vivo and descriptive coding. In Vivo was used for the interview and voice chat transcripts. Descriptive coding was employed for the observations (fieldnotes) and artifacts to gain insights into my informant’s experience on Crayta.

In Vivo Coding. In Vivo coding and descriptive coding are both types of elemental coding methods (Saldana, 2016). Elemental methods lay a foundation for further coding cycles. In Vivo coding, otherwise known as “verbatim coding, natural coding, or inductive coding” (Saldana, 2016, p. 105), is focused on short phrases or words from the actual language used by the participants (Saldana, 2016). They are participant-inspired words rather than alternative methods where codes are research-derived or generated. Burns (2019) defines In Vivo coding as the “descriptive markers of things people say” (p. 3). The coding method can capture the meanings inherent in human experience (Saldana, 2016).

Descriptive Coding. On the other hand, descriptive coding “assigns basic labels to data to provide an inventory of their topics” (Saldana, 2016, p. 97). To be precise, descriptive coding identifies the topic rather than the abbreviations of the contents. Descriptive coding is one of the approaches to coding and analyzing data, such as

fieldnotes, artifacts, videos, diaries, journals, and others. In addition, the coding method answers reflective questions such as what the study is about (Saldana, 2016).

Summary

The goal of the chapter was to describe the research methodology for the study. First, I reviewed the sampling framework. Next, I provided the research design, including the definition of Ethnography, the origin of Ethnography, Ethnography and virtual worlds, and others. Then, I discussed data collection, including the procedures, instrumentation, and data storage. The data analysis procedure followed suit with an explanation of the type of the thematic analysis intended for the study, the data analysis process, the role of the researcher, and ethical considerations. Upon collecting the data, I will explain the methodological procedures in context in Chapter IV, the next chapter.

CHAPTER 1V

Methodological Procedures in Context

Chapter Overview

In the preceding chapter, I described the qualitative methodology used for my study. In this chapter, I will discuss Gerber's 2019 methodology-in-context, which includes information about the Institutional Review Board process (IRB), gaining access, reforming my research questions, changing my data analysis method, and constraints I encountered with my participant sampling and selection up to my arrival at the data collection phase. According to Bonisch-Brednich (2018), these constraints are the "confessional tales of ethnographers" (p. 2), determining what is written, including what went wrong, conflicting emotions, glorious moments, related anxieties, how ethnographers constructed the field, and the kind of data collected. Hence, in this chapter, I will talk about my experiences, fears, concerns, delays, dilemmas about the digital spaces to study, and other issues.

Gerber's (2019) Methodology-in-Context

In enhancing the transparency and trustworthiness of the study, Gerber (2019) suggested including the methodological procedures-in-context chapters to provide a detailed account of the data collection process and guide other researchers and doctoral students who might want to conduct a similar study (e.g., Gerber, 2008; Gound, 2020; Stanford, 2020). According to Gerber (2019), the factors should include detailed information about (a) gaining access; (b) establishing rapport; (c) impression management; (d) role management; (e) informed consent; (f) deception, if any occurred; (g) researcher/research participant relationships; (h) conflicting obligations, if any

occurred; (i) making the private public; and (h) disengaging from the field. Because these factors happen *in situ* and cannot be foreseen by the researcher, detailing the methodological procedures in context can help the researcher provide the reader with transparency and situational awareness about a given study. The factors are iterative and do not follow a particular order.

Gaining Access and Establishing Rapport

My LITC 7360 Virtual Ethnographic Class. The LITC 7360 Virtual Ethnographic class in the summer of 2020 set the mood and prepared me to focus on the space I wanted to conduct the study. As part of the class activities for the course, Dr. Gerber told us (the students) to start looking at digital spaces, otherwise known as affinity spaces, that might capture the literacy or learning experiences we were looking to study. Previously, I followed a gaming community online known as Stadia, of which the Crayta community was part. Although the Crayta community had not fully launched during the Virtual Ethnography class, I was up to date on its pre-launch streaming and activities. So, I selected this space to study; our final project for this class was to look into a sub-culture of the larger community. Therefore, I became a member of the larger Stadia cloud gaming platform and the sub-community of Crayta.

My Dilemma About the Spaces. During my search for various spaces related to the Crayta sub-cultures, I came across several online spaces. First was a Discord server, a digital distribution for users, gamers, creators, builders, and novices to communicate via text messaging, voice calls, media, files in private chats, or as part of communities referred to as “servers.” Of course, I had introduced myself as a literacy doctoral student and talked a bit about my research (on the Welcome page- where participants get to

introduce themselves). I also found a small Crayta Creator Facebook private community page, and I joined, which made me the 25th member. While the Facebook page administrator was excited at the news and showed interest in my study, the other administrator I talked to on Discord told me that he was in a meeting and would give it a thought once he was done. After his meeting, he told me outrightly that they could not offer official permission for the research on Crayta outside of the regular playing of the game. The third space that I located related to the Crayta community was Reddit.

However, the administrator in charge of a Reddit Crayta group I was interested in told me that they do not allow people to reach out to members for research, studies, surveys, or any form of data gathering. Reddit is an avenue with over 100,000 communities where meme makers, gaming communities, bloggers, support groups, and creators of all kinds come together to have interesting discussions about various topics as diverse as one could imagine. Since I did not have permission to collect any survey data, my final project for the course was based on the analysis of what I could see on the general public Discord chat platform.

Nonetheless, I was able to establish my presence as a researcher and engage in the purpose of my research on the forum. Once established within the Discord space, I was able to join another server, where I met one individual who was particularly enthusiastic about my study. However, I could not recruit him or collect any data until I received the official approval from the Institutional Review Board of Sam Houston State University to commence the study.

Institutional Review Board Process

After successfully defending my proposal on July 21, 2021, with approval and no changes from the committee, I immediately created the initial IRB protocol in the Cayuse system to gain permission to start the study on Crayta on the same day. However, because it was after the last summer IRB meeting, my chair (Dr. Gerber) told me that the IRB would not meet again until September 2021, so that I had some time to draft the protocol before it went to the IRB. Therefore, I immediately started drafting the IRB protocol, and I got her advice and guidance via emails back and forth on how to go about the process. Eventually, I sent my initial submission on Wednesday, September 29, 2021. At first, I thought that the IRB process would be a walk in the park. However, I was mistaken as my IRB protocol was returned to me on Friday, October 1, 2021, due to the following reasons: (a) Faculty sponsor/CITI training needed to be reloaded (b) some parts of the consent form were still in italics/boldface and needed to be changed (c) some language needed removal. My chair and I rectified the issues as soon as possible, and I sent the protocol back on Tuesday, October 5, 2021. Again, the submission was returned on the same day, with Sharla Miles, the university compliance officer, commenting on my IRB protocol that I should not make the next submission without my chair's approval. To further drive her point, Ms. Sharla Miles sent a copy of my consent form via an email to Dr. Gerber and me on October 5, recommending some edits and comments for our consideration. These include (a) removing some boilerplate language, (b) including Dr. Gerber's and my contact email in a section of the consent form, (c) requesting an alteration and eliminating the signature lines on the consent form, (d) and removing a section that was not relevant to my study. I contacted Dr. Gerber via email, and I

submitted drafts of the consent form more than once, making the necessary changes Ms. Miles had pointed out. At that point, Dr. Gerber also suggested that I specify the number of hours for each interview and the total hours of interviews for all participants. On Friday, October 8, 2021, I resubmitted the IRB protocol. I got a notification that the approval process would typically take two to three weeks to complete from the time routing of the submission is complete. On Monday, October 11, 2021, I got the approval to proceed with the study. My study received an expedited review category based on my non-vulnerable population, an appropriate risk/benefit ratio, and a project design wherein the risks have been minimized. Figures 14 and 15 are copies of emails sent between me and my dissertation chair regarding the initial submission, feedback, revisions of my IRB protocol, consent form, and when the IRB would reconvene for the Fall 2021 semester. Figures 16 and 17 show the initial submission returned and Sharla's email on the recommended edits.

Figure 14

E-mail from Dr. Gerber on My Initial Submission

Gerber, Hannah

Thu 23/09/2021 14:08

To: David Ojumu, Omobolaji



Hi BJ, I **completed** my read through of your revisions. They look great! Go ahead and go back into the **IRB** form and make sure you make all font the same (so all things bolded or underlined return to normal font) and then you are ready to submit it:-)

Hannah R. Gerber, Ph.D.

Professor, Literacy, Sam Houston State University

Co-Chair **IRB**-PHSC

Figure 15

E-mail Between Me and Dr. Gerber on IRB Revisions Consent Forms

I have made the necessary corrections on the **IRB**. Please, find attached a copy of the consent form.

Thanks!

...

Gerber, Hannah

Thu 16/09/2021 13:17

To: David Ojumu, Omobolaji

    ...

Hi BJ,

I have finished reviewing your **IRB** protocol and you will see my feedback is listed throughout as bolded and underlined, as well as in strikethroughs. Please go ahead and begin to make these revisions. they should not take you that long to complete. Also, for whatever reason the platform will not allow me to download the Consent form. Can you send that to me as an attachment? Thank you in advance. **IRB** doesn't even reconvene again until the end of next week, so you are right on time:-)

Figure 16

Email from IRB Showing Initial Submission Returned

FROM: Office of Research and Sponsored Programs

RE: **Initial Submission** Returned to Investigators

STUDY #: IRB-2021-245

STUDY TITLE: Young Male Videogamers' Literacies on Crayta Within the Stadia Culture

The Office of Research and Sponsored Programs has completed their review and returned the above referenced study in Cayuse IRB to the investigators for changes. Please log into [Cayuse IRB](#) to review the requested changes, make the appropriate revisions within the **submission**, respond to all comments, and provide updated versions of any revised study attachments, as applicable.

Thank you in advance for your prompt response. Please contact the IRB staff if you have any questions or concerns.

Sincerely,

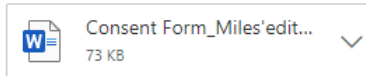
Chase Young, Ph.D.
Chair, IRB

Figure 17

Email from Sharla on Suggested Edits and Comments for the Consent Form

To: David Ojumu, Omobolaji; Gerber, Hannah

Cc: Miles, Sharla



Hi BJ,

Attached is your consent form containing my recommended edits/comments for consideration. Please let me know if you have any questions. Thank you.

Dear Faculty, Staff, and Student Researchers,

Have IRB questions and want to meet? Here's [my scheduling link](#). Go ahead and choose a time/date that works for you!

Sharla Miles, M.Ed., CIP

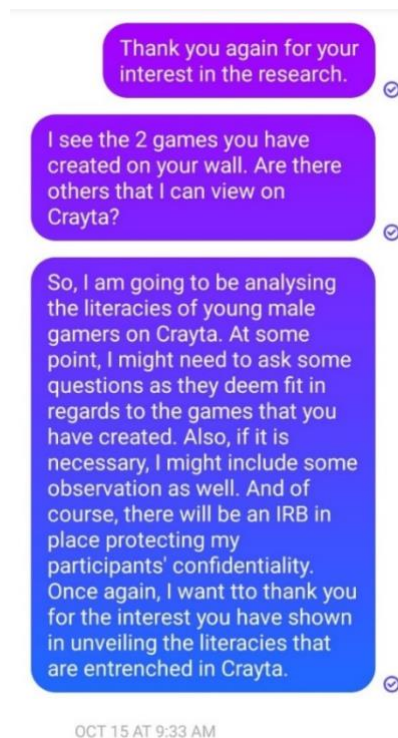
Participant Search and Selection

I Got My Approval, but with More Hurdles

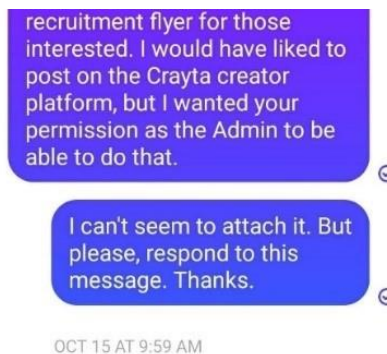
Upon getting my approval from the IRB, I was excited, and so was my dissertation chair; little did I know that there were more hurdles to cross related to the recruitment of participants. Getting approval from the administrators of the social media platforms (Facebook, Discord, Reddit) was a bit trickier than I first thought. I sent texts via Facebook messenger to the administrator of the Facebook community page to inform him I was ready to start the study and see if he was still interested. In order to proceed with using Facebook as a recruitment tool. I needed his permission to send the recruitment flyer to the group members. However, I got no response. I sent several private messages over the next week, but still, I did not get any answer. Figures 18 and 19 are screenshots representing the copies of the texts I sent to the administrator on October 15, 2021, four days after the study was approved.

Figure 18

A Screenshot of My Texts to the Facebook Administrator

**Figure 19**

Parts of the Text Requesting Administrator's Permission

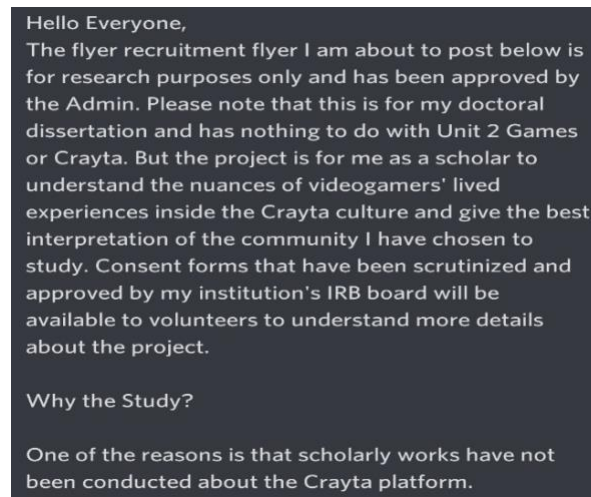


While waiting for a response from the Facebook administrator, I summoned courage and tried to contact the administrator of the Discord page. I re-introduced myself and briefed him about my study. He asked to see the recruitment flyer whenever it was

ready. I sent a copy of the flyer to him via chat, and then he told me that it was absolutely fine to share but gave the conditions that (a) I share on the off-topic channel and not any other channel on the server (b) be clear in my text that this is my personal project, and it has nothing to do with Unit 2 Games or Crayta. I was excited about this opportunity but had mixed feelings because the off-topic channel is a platform where topics are placed that do not fit in the other categories, such as metaverse, graphics optimization, congratulatory messages, how to move terrains from game to game are discussed. I feared that not many people would see my recruitment flyer because few people pay attention to the channel. So, I thought, “Getting participants here might be a bit difficult for me.” Notwithstanding, On October 15, 2021, I sent the announcement to the page (see Figure 20).

Figure 20

A Screenshot of My Study’s Announcement in Discord Chat



As soon as I sent the announcement, an individual responded, “Well, I’m too old, I guess, Jeez.” The individual continued, “Anyways, this is a small sample of my work from late teens to 30s,” and then started sending several artworks to the public chat page for me

and users to see. I responded, “Great job!” He replied, “Much appreciated, sir!” I thought to myself, “He must have thought I was a male,” and I grinned. Then another person asked, “Does volunteer mean ‘doing stuff for free?’” I did not know how best to answer this individual, so I quickly emailed Dr. Gerber to advise how best to answer. She advised on what to tell the person, so, in a private message, I wrote, “I am not asking you to do things for free, but I just want to talk to you about your videogame experience.” The individual answered, “ My English isn’t that great, but I’ll answer as good as possible.” Then he said, “My bad, thought you are another person.” He said this because he had earlier sent a “go away” gif, indicating that the gif was not meant for me (see Figure 21).

Figure 21

A Screenshot of the “Go Away” Gif



On October 13, 2021, I sent a copy of the recruitment flyer and consent form to the individual, as mentioned earlier, who had shown interest in the study. I got an email from him on the same day at 10:33 pm, telling me that he agreed to be a part of the study,

and he had also filled out the Qualtrics survey (see Appendix A) that was listed on the recruitment flyer with a QR link (see Appendix C). I felt happy and thought to myself, “at least one person is interested.” Nevertheless, I started getting worried when I was not getting any other feedback from anyone, so I voiced these concerns and worries in a recruitment email update to Dr. Gerber (see Figure 22).

Figure 22

My Recruiting Email Updates to Dr. Gerber

David Ojumu, Omobolaji

Mon 18/10/2021 12:02

To: Gerber, Hannah

Hello, Dr. Gerber,

I just wanted to quickly **update** you **on** what is going **on** with my **recruitment**. So, I have got that **one** participant who has always shown interest. I sent the **recruitment** flyer to the Discord group, but there is still no response. Although, **one** individual told me that he was older than the ages specified. Another person was asking if the volunteer in the flyer meant doing things for free. The Facebook guy is not even responding at all. I have sent tons of messages to him, but I am not getting anything. And I can't post **on** the group page without his permission. This means that I might go ahead with the research and eventually move **on** with that interested individual. Since the study is going to most likely include **one** participant, please, how many hours of observations are going to still be needed, and how do I split it? Then, for the interview questions, how many do I still need to ask him?

Thanks!

Note. Screenshot of my recruitment update, concerns, and worries to my dissertation chair

Dr. Gerber further told me that recruiting participants would take time and that I should wait a little longer. So, I waited for two weeks after the first announcement, but nothing was still forthcoming. So, I went back to the Discord administrator and asked if there was any other platform I could share the flyer. He said that he would allow me to post the announcement again on the off-topic channel page at some point. He believed that the post got a bit lost after the guy posted his artwork earlier. He also said I should be a bit clearer in the second announcement. I asked what he meant by that, but he failed to respond. So, on October 29, 2021, I sent another notification to the platform and tried to be as detailed as possible. Hence, I added the following words:

...I want to talk to videogamers about their gaming experiences on Crayta, what they love most about Crayta and other things. If you would like to participate, please scan the QR code on the bottom right to enable me to reach out to interested individuals. Please, do not hesitate to ask questions. Thank you for your time, and also, thanks to the admin for giving me the opportunity to post this again.

At some point, I was thinking of expanding the demographics to give such people, like the individual who said he was older than the age specified in the flyer, an opportunity to participate in the study. Nevertheless, it appeared he was not interested, so I discarded the idea. In addition, my second announcement sparked some meme reactions and comments from the female participants (as shown in Figure 23).

Figure 23

A Sexist Meme



Note. This figure depicts a screenshot of the meme sent to me by a female participant via chat.

Another female player lashed out, “Why is it that only males are included in this? I would love to take part, but the poster is so sexist.” Then a female player replied with a “So True” meme to show agreement (see Figure 24).

Figure 24

A Screenshot of the ‘So True’ Meme



“Wow, I had not even noticed, but you are right. That is weird,” replied another female gamer. At this point, I must confess that I got tired of the whole situation.

A Change in Plan. Notwithstanding, I immediately e-mailed my dissertation chair informing her that I would move on with that one potential participant. She told me that I would need to return to the Cayuse system to modify hours of observation per participant on my IRB protocol. The initial plan was to have a maximum of four participants for the study with a maximum of six hours of observation per participant, but given I only had one participant showing interest; I had to modify the IRB protocol to indicate that more hours of observation would be conducted per participant. Hence, on November 8, 2021, I requested changes in the following sections of my IRB:

- (i) Section 3, item A (a) procedure
- (ii) Section 3, item A (1) procedure in detail.
- (iii) Section 4, item A (2) -sample size
- (iv) Section 6, item C- consent form.

My modification received an expedited determination, and I got the approval on November 8, 2021. Afterward, I resent the modified consent form showing the number of participant(s) and modified hours of observation to my potential participant, explaining what had changed, and he told me that it was fine. I asked if he preferred a particular pseudonym to go by, but he stated that he did not really care and told me to pick whatever name I wanted.

Data Collection Procedure

Interview Process/Schedule

There were 20 interview questions in all, one semi-structured and nineteen unstructured interview questions aligned with the research questions. I also had follow-up questions. The schedule for the interview was quite flexible, as Caden was open to any time given. Interviews were gathered from various media, including text chats, e-mails, voice chats (in the form of follow-up answers to previous questions), and transferred into a Word document. The voice chat recorded while observing was transcribed using the speech to text transcription and translation app Otter.ai. However, using Otter.ai, the translation was not accurate, and I had to play the audio over again to capture every word and transcribe it by hand. See Table 3 for the interview schedule.

Table 3*Interview Schedule Showing Dates, Location, and Duration*

Interview	Date	Location	Duration
1st Interview 1 Question+ 1 Follow-up question	Nov 9, 2021	Discord text/chat (phone)	42 minutes
2 nd Interview 6 Questions+ 7 Follow-up questions	Nov 11, 2021	E-mail Discord text/chat (phone)	1 hour 23 minutes
3 rd Interview 6 Questions+1 Follow-up question	Nov 18, 2021	E-mail Discord text/chat (phone)	40 minutes
4 th Interview 7 Questions+ 4 follow-up questions	Jan 10, 2022	E-mail Discord text/chat	40 minutes

First Interview. Having consented to participate in the study, I asked Caden if he had questions before starting the interview. He told me he was good. So, I conducted the first interview through a Discord chat on Thursday, November 9, 2021, at 9:55 am. Since the first question was a personal story, I felt he would be more comfortable chatting

rather than making it too formal by sending the *Tell Me About Your Background* question via e-mail. Moreover, I saw its effect in our discussion. I could feel how he was open and relaxed in his tone, sharing sensitive topics with me. Excerpts from the conversation followed:

...but, despite my schooling, video games played a vital role for me. I feel as if it's saved me as well. Since not having too many friends and just having a hard life, I would turn to video games to help. It did the job. In the back of my head, when I played games, I always knew I wanted to make them and tell my story.

As we discussed further, he exclaimed:

I forgot to mention! Crayta is the game that got me to actually play Stadia. Legit I bought Stadia never touched it or played it. Crayta released on it. I legit just stuck to Stadia. Also, this was around the time I tried to apply to Xbox. They told me no, then I canceled my Xbox Live I had for years because it broke me to even play it. Now, I just am on Stadia.

Second Interview. The second interview questions were sent via encrypted email at 10:06 am on Thursday, November 11, 2021. I followed up with questions the following day at 9:17 am via instant messaging on Discord. But his responses to these sets of questions were relatively too short, and he used terms or acronyms that may not be clear to non-gamers when I asked about his experience playing and creating games on Crayta. His response was, "My experience playing and creating games on Crayta has been really fun. I am best at creating environments, but I am not so good at programming. Just the UI/UX and controls feel and look amazing, making it fun." Then, I asked, "What kinds of games do you play on Crayta?" He answered, "Depending on what level I am in

the battle pass, if I am trying to gain XP, I just bounce to the games I am familiar with.”

Before the interview, I did not grasp the phrases UI/UX, XP, battle passes. So, I inquired with a follow-up question, “I heard you say UI/UX, XP in your previous responses. Can you please tell me more? To which he responded,

Well, all those listed make it fun to play. Most games, well, for me, are just boring. I don’t find myself getting as bored playing Crayta simply due to those listed. I mean, sometimes I get bored, but that’s because I have no one to create with.

Still, I was not getting the answers I wanted, and the meanings of those phrases were not coming, so I asked directly, “What do those terms mean for someone who is not a gamer?”

Caden: UX/UI is the interface of what your screen looks like. Basically, it looks like Minecraft, Roblox, and Fortnite had a beautiful baby. That’s Crayta. Along with controls. XP-wise it is not too hard to get, but when you reach level 100 on the battle pass, it feels worth it. I always felt Crayta battle passes are actually worth it versus Fortnite. Never thought Fortnite had good ones. Plus, Crayta overall is just a better game in my eyes.

Me: Lol @ a beautiful baby. You really enjoy Crayta.

Caden: Yeah, lol, my favorite game of all time tbh [to be honest]. Like the only game I actually can say was worth paying for.

I queried further, “So, battle passes are like a reward, and XP is like progress on the game? He replied, “Basically, since most games have battle passes, I think Crayta’s been actually worth it and not just a waste of time.”

Third Interview. The third set of Interview questions was sent to the participant via email at 9:01 am on Thursday, November 18, 2021, and I got them back at 2:52 pm the same day. For these questions, his responses were precise and straightforward. For example, when I asked the question about why he decided to join Crayta and what made him identify with the community, here were his replies:

Well, I was bored of video games and saw an Ad for this game. The game looked so fun, and I started up playing Stadia from that game. I joined the Discord and just loved how welcoming the community was, so I stayed with it... well, everyone apart of the Crayta community is amazing and super friendly. Everyone is willing to help you if you ask.

Fourth Interview. I also sent the last interview questions through an e-mail on Monday, January 10, 2022, and I received the participant's responses at 11:48 am the same day. Even though I had told my participant to elaborate as much as possible, his responses were relatively straightforward and short. Hence, I drafted some follow-up questions. Then, I sent them to the participant via text chats on Tuesday, January 11, 2022, at 8:29 am to learn more about the topics of discussion. For instance, the participant talked about a plan I needed him to expound on. So, I asked, "I know that this is still in the making, but can you please tell me more/describe the 2D platformer plan? How does it work, or how did you make it happen?" His response this time created a more precise picture for me.

Observation Process/Collection of Artifacts

Caden and I discussed what time might be best for observations of his gaming. First, I tried to schedule the time of observations during the week, but it appeared his

schedule was tight to be able to do observations then. Then, since his survey response indicated that he was either going to be observed directly while playing or indirectly via a link, I requested if he had a link where I could observe his gameplays. He provided the Uniform Resource Locator (URL) to his YouTube page, where he said he would be uploading his sessions for me to observe. This idea was somewhat welcoming because he told me it would be an opportunity to stream Crayta more as he was currently creating some games on the platform. In addition, I took screenshots of artifacts with my OnePlus Nord N10 phone and laptop as I observed my participant in the field.

It is worth noting that the observation protocol served as a guide to what was included in my handwritten and typed fieldnotes and my reflections for this study. I will expound on this as I discuss my findings in the next chapter.

My Data Analysis Method Changed Too!

The analysis process was another aspect of the study that got me baffled and anxious. Even though Creswell and Poth (2018) and Eriksson and Kovalainen (2016) have made it clear that there is no single way to conduct ethnographic data analysis, I still did not know where and how to start. Besides, as I kept collecting data, it became more and more apparent that the content analysis that I had intended to analyze the data might not be the best method to capture the participant's experiences on Crayta. Moreover, as I began my jottings, fieldnotes, and reflections, I discerned some patterns of behaviors, activities, and actions in the culture. Furthermore, Braun and Clarke (2012) affirmed that thematic analysis is one of the most flexible methods that provide an entry into implementing data that seems perplexing and “conceptually challenging” (p. 58) in qualitative research.

So, I began to ponder: Have I chosen the best method? If I employ the content analysis method for the interview, will it work for observations? What about the artifacts; how do I manage the data? Or maybe I will use the process for the interviews only, but how do I analyze the observations and the artifacts? I reached out to Dr. Gerber once more via email when I could not hold it in. Thus, I inquired:

I have reviewed chapter IV, and I am sending it again to you, please. Hence, I have attached it to this email. Meanwhile, I have a quick thing to clarify. Even though there was a point in the observation where I recorded a voice chat (which I would probably analyze via content analysis), do I still have to use content analysis for all the other things I observed? Please, advise.

Dr. Gerber told me that I could revise the methods and do a thematic analysis instead. She further noted that content analysis is for documents, not even interviews, which would be more discourse analysis depending on what I am trying to do. As a result, I searched for articles and read books on thematic analysis and coding to see what process would work best. In addition, I read through some of the students' dissertation examples my chair had earlier sent to me. I noticed that each of their studies had its unique way of approaching the data using a thematic analysis method, indicating that Thematic Analysis allows the researcher to use the method in different ways (Braun & Clarke, 2012). So, I opted for the thematic analysis method.

Remodifying My Research Questions

My research questions were modified due to the participant sample I was able to get for the study. The initial research questions guiding the study included:

1. How do males aged 18-30 engage in literacy practices on Crayta within the Stadia videogaming community?
2. How do male gamers layer their literacies and employ the four components of the feedback loop while playing Crayta within the larger *Stadia* culture?
3. How do males practice their literacies through play and game creation?

Therefore, I revised the questions to the following questions:

1. How does a college-aged male engage in literacies through play and game creation on Crayta within the Stadia videogaming community?
2. How does a college-aged male gamer layer his literacies and employ the four components of the feedback loop while playing Crayta within the larger *Stadia* culture?
3. How does a college-aged male practice his literacies through play and game creation?

Disengaging From the Field

Leaving an ethnographic site abruptly or never logging on again leaves participants confused, betrayed, used, or abandoned (Boellstorff, 2012; Gobo, 2011).

“Fieldwork is never a lifelong endeavor (Boellstorff, 2012)” as each research has a starting point and an ending. Gobo (2011) suggested ways by which an ethnographer can sense when to leave the field as follows:

- When the group examined no longer appears to researchers as problematic or unfamiliar.
- When no new data is forthcoming (a saturation phase signaled by repetitive fieldnotes).

- When researchers feel heightened confidence (i.e., they are convinced that they can publish their results confidently).

Gobo (2011) noted that researchers must devise strategies to withdraw from the field with professional dignity and honor and also emphasized keeping in touch as the best strategy for such disengagement. First, I prepared my participant for my departure by letting him know that the data collection phase is gradually ending. Again, one way to achieve this is by subscribing to Stadia to gain knowledge of the gaming culture and keep abreast of events that may lead to reformulating theories and studies in the future. Even though I had formed a positive relationship with the participant (who also happened to be my informant), Gobo (2011) proposed that another way to take one's leave is to continue the relationship at a distance.

Summary

In this chapter, I explained the methodological procedures in context, identifying the ten factors as defined by Gerber (2019). Also included is a recount of my Virtual Ethnography class taken in summer 2020, my dilemmas about the spaces, the Institutional Review Board Process, the participant search and selection, a change from my intended data analysis method (content analysis) to (thematic analysis), and the data collection procedure, and the process of disengaging from the field. In the following chapter, I will present my findings by first providing a snapshot of the gaming culture with visuals, including detailed accounts of my participant's experiences and the voice chat recorded during that gaming session.

CHAPTER V

A Snapshot of the Crayta Culture

Chapter Overview

In Chapter IV, I explained the methodological procedures in context as Gerber (2019) outlined. I also included the data collection procedure, a change in my analysis method, and the process of disengaging from the field. In Chapter V, I will provide a snapshot of the gaming culture with visuals/artifacts, including detailed accounts of the cover page, the asset library, the social actions emote wheel, as well as examples of Caden engaged in game play, such as Caden with other players in the hub, the hub itself, etc.⁸ After these descriptions, I then engage in a presentation of the themes.

Introduction

Hine (2000) argued that "the experience of fieldwork does not produce a mysterious empowerment, but without it, the ethnographers would not encounter the context — the smells, sounds, sights, emotional tensions, feel — of the culture, she will attempt to evoke in a written text" (p. 46). Kawulich (2005) also posited that the experience "affords access to the backstage culture; it allows for richly detailed description..." (p. 6). Brewer (2000) and O'Reilly (2012) also posited that writing detailed descriptions of key settings, events, and people are good ways to enter into the analysis aspect. Burns (2019) referred to this stage as chronological narrative (p. 124). Hence, in this chapter, I present a report and a vivid description of the cultural environments I conducted in my study to portray a rich, thick description of my

⁸ The hub is a hangout space where players meet other players to show off their sprays, emotes for social actions reactions of other players, play initial games, or create games together.

informant, his lived experiences, and the cultural nuances that define the culture he was part of, drawn from observations, interviews, reflective journals, and artifacts.

Who is Caden (pseudonym)?

Caden, an African-American, is a final year college student studying Cinema. He is a narrative game designer and identifies as a 26-year-old male. At the time of the study, he lived in the Southwestern United States. Caden did not have too many friends growing up and has had a hard time socializing. Despite his schooling, videogames played a vital role for him and saved him. Regardless of having a learning disability, he was a motivated individual. Caden knew he always wanted to make videogames and tell his story through them whenever he played. Caden's passion for gaming and narrative design led him to an acceleration program focusing on game development for local youth of color. Crayta is the game that got him to play Stadia.

The Cover Page

As the server loaded the game data, the screen displayed the Crayta cover page. Caden and other players' avatars gathered in a large open space—the hub. Some players' avatars tapped away on the small screens that appeared on their left wrists; some ran off to play, while others simply stared at the large, interactive screens before them. The home page or the main menu displayed different information and news about the game. For example, one statement read, *“Looking for help? Check out our creation tutorials.”* Caden proceeded to launch one of the games he had created; he clicked on the edit button on the home page to continue editing the game. The cover page showed that Caden was now in the game.

Figure 25*Crayta Cover Page*

The Asset Library

Caden's next step was to find an empty terrain surface to start building. The asset library box appeared on the screen for a time before disappearing. Before long, a small screen emerged as Caden tapped the cuff on his left wrist. A drone also appeared. This time, "Press F5 to preview, press tab for advanced mode, and press o for console" was displayed at the top right corner of the screen. At the bottom left, "Toggle voxel tool, Pick up terrain, Delete terrain, Edit terrain, Open asset library" was shown.

Once more, the asset library box popped up on the screen.⁹ Caden chose the tarmac (smooth) and rubber voxels from the asset library.¹⁰ As he interacted with the small screen on his left wrist, he placed the rubber and smooth tarmac voxels on the terrain to create something. Returning to the library, Caden clicked on the plain carpet

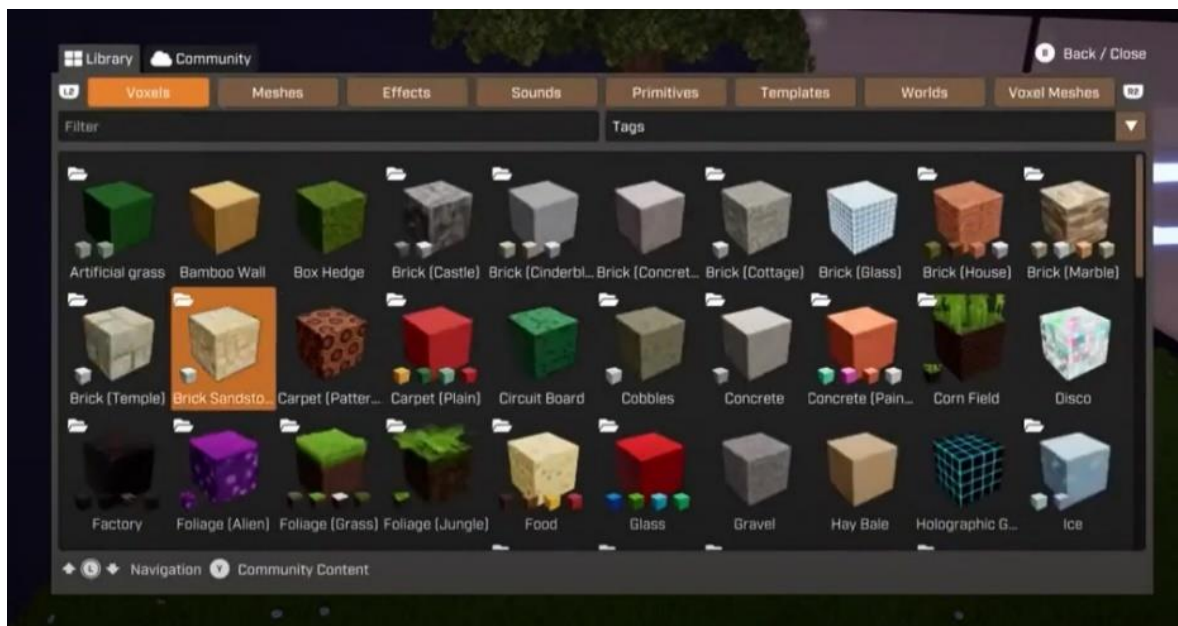
⁹ The asset library provides easy access to a collection of Crayta packages, such as templates, meshes, scripts, widgets etc. that players can use enhance the functionality of their games.

¹⁰ Voxels are the physical building blocks of Crayta.

types. His options here were blue, green, red, and white carpets. Choosing the white carpet, Caden placed it down into the appropriate spaces, during the entire time clicking on the small screen to make necessary modifications. If a portion was not to his satisfaction, it was re-done by replacing it with a different voxel type (see Figure 26 for a description of the asset library).

Figure 26

A Screenshot of the Asset Library



Caden returned to the asset library, this time selecting the red carpet. As before, with the white carpet, he filled spaces with the red. Not happy with his choice, he later changed them to rubber. With the rubber now in place, he mounted a pole with the plain red carpet with the rubber voxels. As he jumped down from the red carpet, I wondered, “What is he trying to create? A wrestling ring?” Another visit to the asset library awaited; Caden clicked on the voxels tab and selected the cinderblock brick. He placed the bricks onto the surface, along with the white carpet. Being meticulous as always, he

occasionally removed pieces and replaced them, making minor adjustments as he built. Convincing myself even more, “This has to be a wrestling ring!”. Eyes glued to the small screen on his left wrist, Caden crouched, knees bent, checking the positioning of his voxels closely. With his hands on the back of the screen as he created, Caden teleported to the different terrain sections, extruding voxels, expanding the space, and moving voxels piece by piece to make the entrance to his boxing ring.

The Social Actions Emote Wheel

Next, and for the first time, I saw the social actions emote wheel appear on the screen.¹¹ This wheel displayed the different emotes available in the game; the drone is back too! The emotes on the wheel included *Nosedive*, *In your own time*, *Yasss! Hey hoe down*, *I love you*, *Fruit salad*, *Charleston*, and *Go team*. Each was expressed through dancing or gesture. Caden danced the Go team and Charleston emotes before strolling toward his newly created boxing ring. Then, he jumped theatrically into the ring and out again. He jumped up and down in the ring several times to demonstrate his excitement. The drone re-appeared, along with the social actions emote wheel. This time, Caden opted for the *Yasss* emote, clenching his right hand and holding it aloft in a show of accomplishment. Figure 27 shows an illustration of the social actions.

¹¹ The social actions emote wheel (often accompanied with music) helps characters to show various feelings or communicate something to someone.

Figure 27

The Social Actions Emote Wheel



Note. This figure displays the different gestures on the emote wheel.

Clicking on the social tab on the home screen, a series of outfit collections became available to Caden through the store. His options included a drone, spray, emote, icon and hair. Next, he clicked the Customize tab to reveal links to outfits, actions, chat, characters, and styling. Caden then chose the *Do the robot* emote under the actions tab to replace the *Fruit salad* emote on the emote wheel (see Figures 28 and 29 for more emotes and emoticons examples).

Figure 28*A Screenshot of Emotes*

Note. The image shows samples of emotes under the actions tab on the homepage.

Figure 29*A Screenshot of Emoticons*

Caden with Other Players in the Hub

Back to the hub, Caden joined the other 10-15 players chatting over voice; it appeared that two giant leaderboards caught his attention. The first presented a list of players leading the obstacle course game and their game icons and finishing times. The second leaderboard displayed the course contents or directions. Meanwhile, the other players were seen running off to start the game. Caden's name appeared at the bottom of the leaderboard with no points. Caden immediately set off to start the game as the time ticked down. However, he repeatedly fell over, returning to the starting point. His first race was completed in 10th place with a time of 00:48:489; after a quick check of the course contents, he returned to the start and set off again. An improvement the second time around; 00:41:887 was his time. On reaching a specific score, applause could be heard in the background each time. Not satisfied, Caden tried again until he achieved a seventh-place finish with a time of 00:39:255. Another player could be seen interacting with Caden. A character stood next to him, showing off his emotes and beckoning other players to come over.

Choosing the *In your own time* emote, Caden pointed to the cuff on his left arm to indicate time while the sound of a ticking clock played in the background. When he checked the leaderboard, Caden realized that he was now in fourth place with a finishing time of 00:37:410. The social emote wheel emerged with the drone; Caden picked the *Do the robot* emote. The player standing next to him settled for the *Charleston* and *Shuffle* emotes. Caden again returned to the leaderboard before selecting the *Nosedive*, and *Yasss* emotes. He ran off to race again, finishing at 00:38:076,

00:38:270, and 00:37:917, respectively. However, his score and position remained unchanged; his fastest time was 00:37:410.

The Hub

Caden arrived at the hub. The Crayta logo appeared on the floor at the center of the hub entrance. The hub was a deeper shade of blue with palm trees planted on both left and right sides under a blue sky/cloud with images of different nodes linking each other—it appeared that two human figures were trying to leap into the cloud (one appeared more prominent and pulling the other). At this stage, players can choose from a wide array of available games on the giant, interactive screens in the hub. Text appeared on the left-hand side of the screen, “Voice chat available”, with a microphone icon. In addition, information was shown regarding the current player in action, along with a prompt at the bottom left of the screen, “*Esc: open menu.*” Figure 30 provides a visual representation of the hub.

Figure 30

The Hub



Looking up at the clouds, I saw shooting stars flying back and forth. Caden seemed busy tapping the small screen on his left wrist. The social actions emote wheel appeared as he moved forward. At the top left of the screen was *“L1 social chat”*, on the top right was *“R1”*, while centrally, there was a prompt of *“enable photo mode.”* This time, the emote wheel included *Raw Raw, Shuffle, Fancy Footwork, Chop Chop, Do The Robot, Shake Baby Shake, Charleston, and Freestyling*. A bug-type drone could be seen on the left side of the screen. Caden chose the *Do The Robot* emote; he danced a little bit before running off to climb a wall. Along the way, he crashed into a beach ball. As he smashed into the pink, yellow, and white ball, an update appeared on the left side of the screen: *“You have collected 1/10 beach balls.”*

Next, I saw Caden running ahead onto a major street. A car was parked in the middle. He continued to run before crashing into another beach ball. *“You have collected 2/10 beach balls”*, announced the on-screen notice that has now popped up, and another, *“Jukebox: interact to play a record.”* Right in front of Caden was a beach with water slides, small bridges, an interactive screen on the sand, beach umbrellas, a colorful hot dog cart, seashells, and other items you would typically find on a beach. Caden jumped down onto the sandy beach. I could see different texts appear on the screen; a time display of “30 seconds” was one of them, with *“Collect shells to earn points on the time limit! Some shells are worth more points!”* displayed underneath. I could see that Caden had earned 3 points. An alert, *“Creator challenge completed,”* could be seen on the bottom left of the screen, written boldly in capitals. Below it read, *“Play the shell collection game – 1200XP.”*

The Neon Coast Battle Pass-cum-the Ice Cream Seller

Soon after, Caden rolled over to an ice-cream man wearing red sneakers and dressed in a cone body from arms to the waist, his head a giant strawberry ice cream. I was unsure what he was called until I took a clue from my son and later learned while observing that he represents the *Neon Coast Battle Pass*. The outfit he was wearing was called a *Sparkle Sundae*. The ice-cream man (a term I used to label him) interacted with a small screen on his left wrist. Later, I discovered that the community called him the “ice-cream seller.” As Caden related with him, the drone emerged once more with the social actions emote wheel. Caden emoted the *Do The Robot*.

The Home Page

As the time ticked down to 25 seconds, I could see the clock at the top left side of the screen, and the 3 points earned earlier. Caden crashed into a brown seashell and leveled up, earning 8 points as the clock ticked down to 22 seconds. He ran forward as the time ticked down to 10 seconds. The next thing Caden did was navigate to the home page. Here, several basic information and current news about the game were displayed. A small Crayta logo was shown on both the left and right sides of the screen, along with information about featured games such as those ending in two days with battle passes, joining a game jam, or how to sign up for marketing emails. Caden’s current level in the game was displayed—one hundred. In addition, there were suggested games for players to consider, besides details of their current games. At the bottom left of the screen, I saw “*Play a featured game*,” and underneath was scribbled, “*Create a share link*,” with a share button. Other links at the top of the home screen took players to another location or file, such as *current*, *create*, *social*, *customize*, *store*, and the *settings* icon—the drone re-

appeared. Caden stared for a second before clicking the current tab; this took him to several more options. *Overview, creator, challenges, leaderboards, help, and controls* are the options here. The overview captured information about the creator, the number of likes, the number of views, the experience levels, and the last time the page was updated. Text on the page read, “*Hang out with your friends, meet new folks and explore the Crayta metaverse from the hub.*”

Further options on the screen included like and dislike icons, feedback, favorite, create a share link, report inappropriate content, along with a link to launch Crayta with copy and paste icons. At the bottom right side of the screen was the close menu, close, select, and help tabs. Later, Caden moved to the battle pass page. Here, different battle passes were displayed at the bottom of the screen and their numbers, from 90 to 100. A giant *Neon Coast* battle pass stood and looked around in the middle of the screen. His head was a blend of vanilla and chocolate ice cream with strawberry. Caden clicked on the play link to choose a game to play. (Figures 31 and 32 represent the images of the play page on the home page and the Neon Coast battle pass, *Sparkle Sundae*).

Figure 31

Crayta Play Page



Figure 32

Crayta's Neon Coast Battle Pass: Sparkle Sundae



Note. This figure is a description of the *Neon Coast Battle Pass*. The *Sparkle Sundae* battle pass offers exclusive new emotes, outfits, music and more for players to unlock.

Categories of the different game genres were organized in a 'Netflix-like' manner, and Caden scrolled through the various options. For example, *Favorite Games*, *Recommended Games*, *Popular Games*, *Frequently Played Games*, *Random Games*, and *My Games* were available. Caden eventually chose *My Games* and then clicked on the *Create* button to continue building a game he seemed to have been working on. As he continued to scroll, I could see displays of games that he could edit and his published games. Next, he clicked on the *Social* tab page; here, there were links to *Friends*, *Group*, *Recent*, *Blocked*, *Invites*, and *Crowd Play*, displayed at the top left of the screen. Also, the game revealed his friends and their game icons by clicking on the friends' tab. Next, Caden clicked on the *Customize* link; here, he could change his outfits, hair, body, head, body shape, drone, cuff, icons, actions, and spawn effects (see example in Figure 33). Figures 34, 35, and 36 show Caden in different outfits in the game.

Figure 33

The Customize Link on the Home Page



Note. This figure displays the customize tab with different customized options for players to hone their makeup, hair, icon etc.

Figure 34

Caden in the Settler Outfit

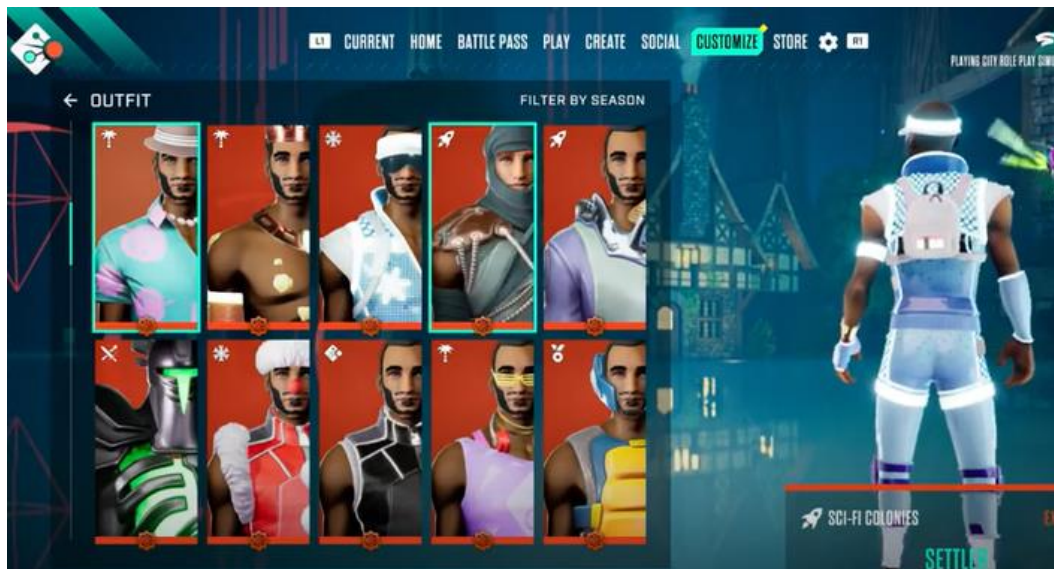
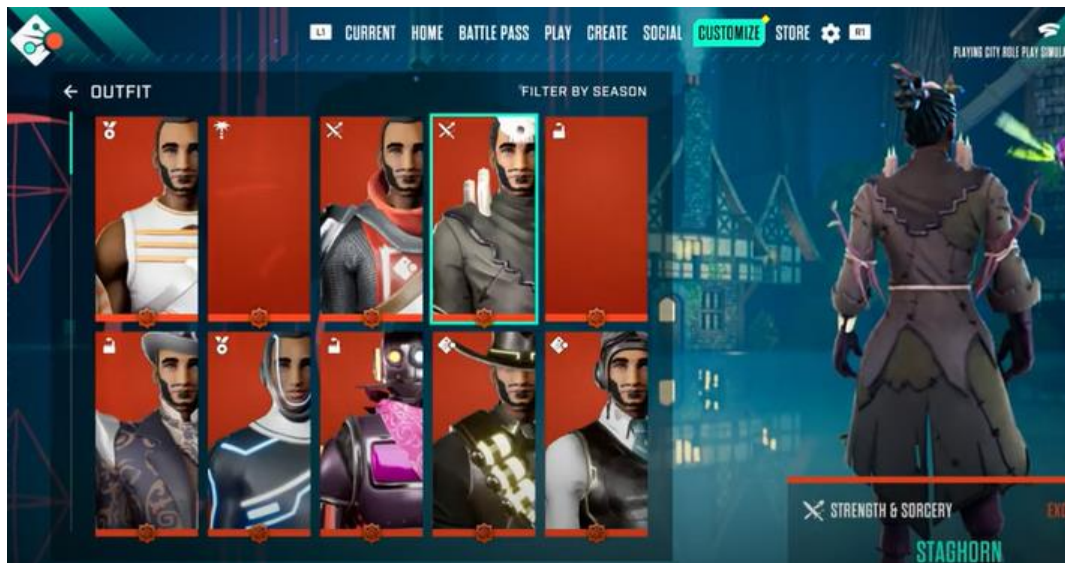


Figure 35*Caden in the Gold Rush Outfit***Figure 36***Caden in the Staghorn Costume*

Soon after, Caden checked the store to see what new stock was available. The screen showed that he had owned most of the stock, such as the outfits and emotes. At that point, he bought an item that he had not previously owned, *Stealth*, representing a

drone, for 800 *Crayta Credits*.¹² Later, I observed Caden returning to the *Create* link before selecting one of his favorite games to edit. There were some more links on the top left corner of the page: *Overview*, *Sharing*, and *Saves*. Tags for the game he was creating were displayed at the bottom of the page; *Casual*, *Connection*, *Cooperative*, *Simulation*, and *Social*. Then, a large *edit* button to the bottom left, followed by links to *Bookmark*, *Publish an update*, *Unpublish*, and *Archive*. Each of these options was represented by a symbol. Next, Caden clicked on the *Share* button to share games. The page read, "*Sharing your games with friends will allow you to work together on your game.*" Also written boldly on the screen was "*Changing sharing permissions.*" Then, clicking on the *Saves* button, a notification popped up, "*Roll back to a previous save. You can roll back your game to a previous save if you encounter issues or have a broken game.*" To share the game, Caden clicked on the *Share* button; this prompted further on-screen options of *continue* and *cancel*.

Caden Launches into the Game

Following this, the cover page showed that the server was loading the game data. Caden sat cross-legged with his arms on his knees, his character on the screen in a bubble. He pointed his right index finger to burst the bubble as he was dropped on the terrain he had been building. As soon as he descended, he moved towards the left side of the street and tapped on the cuff on his left wrist. A small screen emerged; a drone appeared as well. The *voice chat available* prompt was displayed on the left-hand side of the screen before disappearing.

¹² Crayta Credits are used in the in-game store to purchase emotes, outfits, sprays, and other cosmetics.

Caden was now beside a grand, gated park entrance. I could see tall trees, benches, chairs, outdoor lampstands, bricks, fences, walls, and balloons. Red and white road barriers showed that construction was going on. Around this time, several messages appeared on the screen. The left corner showed the options of *Pickup Terrain*, *Delete Terrain*, *Edit Terrain*, *Toggle Voxel Tool*, and *Open Library Asset*. The drone helped Caden to build a street. He changed the layout and the voxel's colors from yellow and blue to black as he finished one section. The words "*Extrude Voxels*" showed on the screen's right bottom corner to extend a voxel mesh in any direction or return to a former state.¹³

Further options appeared on the bottom left corner; *Add/Remove Voxels (2X2X2)*, *Return to Select Mode (B)*, *Add R2*, *Remove L2*, *Toggle Voxel Tool*, and *Open Asset Library*. Next, Caden began to fill the spaces with voxels; he made a yellow mark on the road. Then, moving to another area, he filled it up with a silver voxel to create a pedestrian sidewalk. After that, he made sidewalks on both sides of the road. Then, moving to the right-hand side of the terrain, Caden filled the space with black voxels as he created or made a particular edit; the text on the screen changed accordingly. For example, sometimes, the width or overall size of the voxel changed from (4x4x4) to (2x2x2) or (3x3x3) to (1x1x1), depending upon the size required. The screen also reflected that Caden could undo extrude voxels, add or remove voxels or edit voxels. Finally, he removed some yellow voxels to create broken yellow lines along the center of the road and filled them with black voxels. With this completed, Caden filled up the

¹³ A voxel mesh is a group of voxels that contain from a handful (i.e., a simple rock) to millions of voxels (e.g., a complex structure).

sidewalk with the silver voxels to make a long one and a long one for the central road using black voxels.

Later, I saw chairs, imposing buildings, malls, mountains, hills, and many trees. I could hear a sound in the background as he ran toward the buildings and the park. First, Caden stopped to enter a clothing store; he ran towards the stairs but then outside. Next, he ran into another building with beds, chairs, a restroom, a kitchen, flower vases, lampstands, a TV set, and other household items. It looked as if he was checking to see that everything was in place. Then, he ran outside again and removed and adjusted voxels between the spaces.

As soon as Caden clicked on the library asset tab, a window screen displayed different resources. Available to him were the voxels, meshes, effects, sounds, primitives, templates, worlds, and voxel meshes, which were objects he could add to make his world come alive.¹⁴¹⁵¹⁶ He clicked the voxels to reveal yet more options such as colors, types, and forms to choose from. These options were artificial grass, bamboo wall, box edge, castle brick, house brick, marble brick, temple brick, circuit board, cobbles, cornfield, concrete, ice, puzzle cube, and various others. I next saw Caden scrolling down to select a particular voxel, white ashy-colored polystyrene. The directions along the bottom right side of the screen read, *placing voxels*, *undoing place voxels*, *undo*, and *redo*. Caden began to replace the black voxels with polystyrene voxels. The options were on the bottom right of the screen: *pick up building_city_mall*, *delete building_city_mall*, *edit*

¹⁴ Meshes are objects that players can add to build that are not blocks (e.g., ball, banana, bamboo).

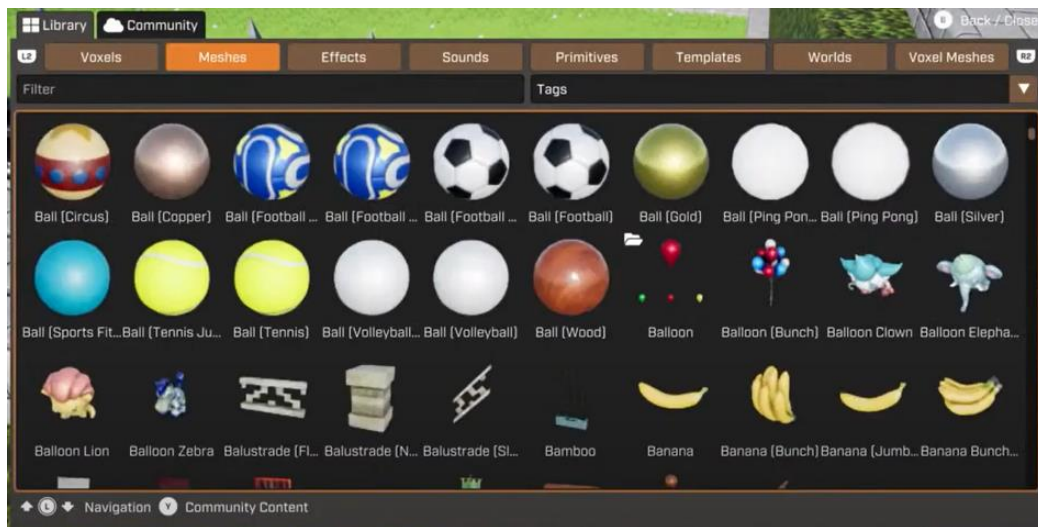
¹⁵ Primitives enable players to add effects, sound, light, character to their creations.

¹⁶ Templates allow players to create re-usable components that can be duplicated in any area of their building.

building_city_mall, and *open asset library*. On the bottom left corner of the screen, I saw the prompts *pick up*, *fill*, *grow*, *erode*, *delete*, *place voxel polystyrene*, and on the bottom right were *erode terrain*, *undoing terrain*, and *remove voxels*. See samples of meshes, primitives, template, and voxel meshes in Figures 37, 38, 39, and 40.

Figure 37

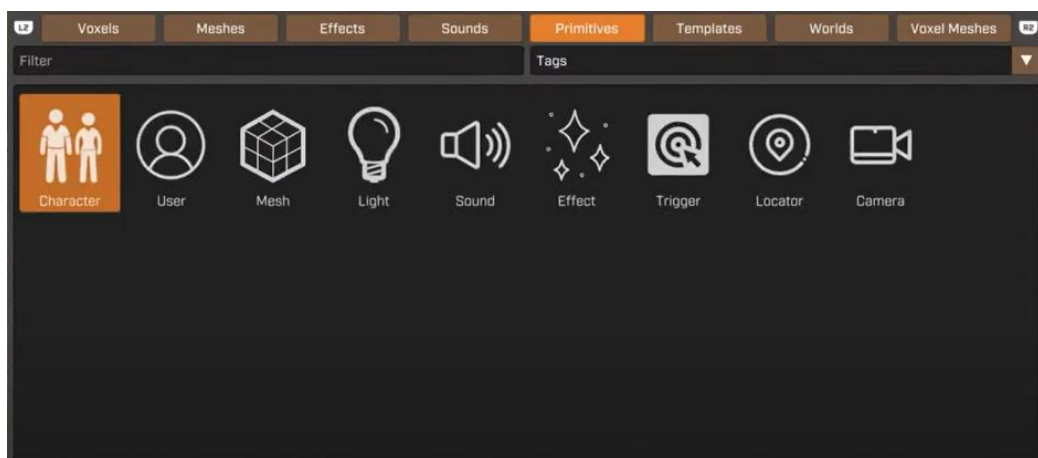
A Screenshot of the Meshes



Note. The image depicts an array of objects players can build with.

Figure 38

A Screenshot of the Primitives



Note. The figure represents the effects players can add to their creations. E.g., sound.

Figure 39*A Screenshot of the Templates*

Note. Image shows reusable pieces that players can reproduce in their world, e.g., door.

Figure 40*A Screenshot of the Voxel Meshes*

It appeared that Caden was keen to check on his craft. He moved backward to admire what he had been making. Then, with the help of the drone, Caden dropped again from the bubble and appeared once more at the park entrance. He then ran into a room and climbed the stairs to enter another room with a terrace. He checked the exteriors and flowers before jumping down and running towards the garden outside. In the garden were

trees, plants, colorful flowers, rocks, and flowerpots. He now climbed over a white brick entrance gate once more to observe what he had been building. Caden seemed happy as he jumped up and down the flower garden. He built white brick walls around the gate, filling it with voxels and replacing empty spaces with polystyrene voxels. Now back in his bubble, he was ready to teleport to another location. Caden again pointed his right index finger to burst the bubble and then dropped to continue building the park entrance wall. He continued to fill the spaces with more polystyrene voxels. While interacting with the small screen on his left wrist, he dragged a polystyrene voxel from one end to the other. The small screen seemed to make changes to the architectural beauty or décor where Caden considered necessary. After each change, Caden paused to reflect upon what he had created. On the bottom left of the screen were some options to select from, “*pick up LondonHouseplantpottree 10*”, “*delete LondonHouseplantpottree 10*”, and “*edit LondonHouseplantpottree 10*”. Also showing were the words, “*pick up MediumRick_Jungleexpeditions 2*”, “*delete pick up MediumRick_Jungleexpeditions 2*”, and “*edit pick up MediumRick_Jungleexpeditions 2*”. Caden then checked the meshes and varieties of materials available, such as *alien in grass*, *ammo*, *cannon ammo*, *ammo box*, *animal rug*, *animal skeleton*, *apple*, *ATM*, *automation*, *baby’s cot*, *back door*, and others. Then, I saw Caden clicking the effects tab. The following effects appeared on screen, *electric shock*, *electric spark*, and others. The template tab displayed *animating décor*, *axe*, *bank*, *bank column*, *boopshuts*, *building office*, *building shop*, *building town*, *building parking*, etc.

Caden Publishes His Game

Caden again navigated to the voxels tab and clicked on the artificial grass category. Under the brick temple, there were plain carpets of different colors. These included blue, gold, green, and red. Caden picked the red carpet and then returned to choose a red-colored grass from the voxels tab. Afterward, he ran towards an adjacent garden overlooking the fence. He rolled towards another entrance with the word *TICKET* written boldly on top of the wall. Four ATMs were seen, placed side-by-side in pairs on either side of the entrance. In the center, I saw an unusual-looking bar booth table. His name, carved boldly, was sitting on the grass at the center of the park.

Then, Caden went back to the home page and clicked on the *publish update* button, completing information relating to the game's *name, description, cover, images, tags, and publish*. There are the usual options to *save, cancel* or *continue*. The tags he had selected were shown in the center of the screen; *casual, connection, cooperative, simulation, and social*. Clicking the *continue* button, Caden was taken to the publish page with "*Ready to publish?*" in capitals. He clicked the publish link; I could see that the game was loading for public viewing on the screen. Then, popping up on the center of the screen was the image he had created, alongside the game's name and a notification, "*Game published!*" with the words "*Your game is now public and ready to be played,*" written underneath (see, e.g., Figure 41 for the publishing page).

Figure 41*The Publishing Page***Caden Joins a Friend's Game**

Having published his own game, Caden went back to the play page and clicked the *Games You Can Edit* button to join a friend's game. The friend danced as the social actions emote wheel appeared alongside the drone on seeing Caden. Caden joined the dance, and both of them were waving their hands in the air and stomping their feet on the floor. Next, his friend popped a bottle, ran, jumped, and beckoned Caden to join in. Then they both ran into a space that looked like an industrial area with motor vehicle parts, broken cars, broken trains, broken doors, and other things. From what I observed, it seemed the friend needed help in building. As Caden ran outside, displayed at the bottom left of the screen were: "Pick up building_industrial_scrapyard," "Edit building_industrial_scrapyard," "Delete building_industrial_scrapyard," "Toggle voxel tool," and "Open asset library." Showing next on the screen was a building map with trails, train parts, and other building materials. Suddenly, his friend appeared at a location, and shortly, Caden arrived in a bubble at the same place. Displayed on the

bottom left of the screen were prompts such as "Pick up building_town_park," "Delete building_town_park," "Edit building_town_park," "Pick up treebushes 35," "Delete treebushes 35," "Edit treebushes 35." As Caden continued to run with his right hand on the small screen on his left arm, options of what to pick up, edit, or delete showed on the screen. Again, with the help of the drone, Caden and his friend were both teleported to their next destination.

A Tour with Caden & Friend

At some point in the observation, I requested to join Caden's game session while chatting with him via the live chats as he streamed Crayta on his YouTube channel. Responding, Caden navigated to the home page and clicked the *social* tab. The tab took him to a page where he could select a friend to join him in the group. Caden duly invited me to join; upon accepting the invitation, I received a notification that I was now in the game on my own screen. Then, I found myself clicking the small screen that had appeared on my left wrist. Caden immediately joined me where I was standing. The social action emote wheel appeared again along with the drone, just as Caden did the *Rah Rah* emote. He rolled on the floor to show his excitement. The wheel appeared again; this time, Caden made the *Do The Robot* move while I ran around to see what he had been building. I saw myself clicking the screen on my left wrist again. One click on the screen had me teleported to another location on the terrain. The social actions emote wheel appeared this time, and I did the *Rah Rah* emote. While this was going on, I engaged Caden in a mini-chat. I could hear everything he was saying, but I could not reply through voice as I did not have a microphone to communicate with him.

Nonetheless, I continued my text chat conversation via the YouTube live chats on his channel while he responded via a voice chat. And as I was busy looking around, I texted him, “did you build all these?” Then, he spoke extensively about what he had discussed with me in the previous interviews and Discord chats. See excerpts below:

Oh yeah! I built all this stuff, or well, I had help with one of my friends.

I’m one of those people where I’m like super bipolar with um building in this where like I just start a whole bunch of servers without finishing.

Like I want to create a theme park, and I have like the base build of it

Like I can literally show it to you.

Yeah, like dude, when I say I’m freaking, I love Crayta.

This is the game that brought me to literally actually play Stadia.

Like I was literally so bored of video games.

To the point I didn’t know, you know what to play because originally I would play um just Xbox.

Just like strictly Xbox. But like I preordered the Google Stadia when it first like came out, and I didn’t touch it at all like at all. I didn’t touch it, and so the announcement of Crayta like coming to the platform. I saw the graphics. I saw what the game itself was about. I was like, I have to get this game, and so I fully just, you know, dropped Xbox to play Stadia and um yeah, so I’ve been super happy...

As he chatted with me, a friend was requesting to join in the game, so he interjected,

Oh, wait! Let me invite this person

Hold on, let me invite. Um invite

Oh, God! Let me see

Um whoa!

I'm multitasking with like a controller

and um

What's it called?

Oh, wait! I can do it through

Um

Let me see, hold on

Oh, let's see

Yeah, I'm kind of I'm a little slow with this

My bad...

Do you want me to show you the theme park?

Here, let me figure out how I can get y'all in my little social group.

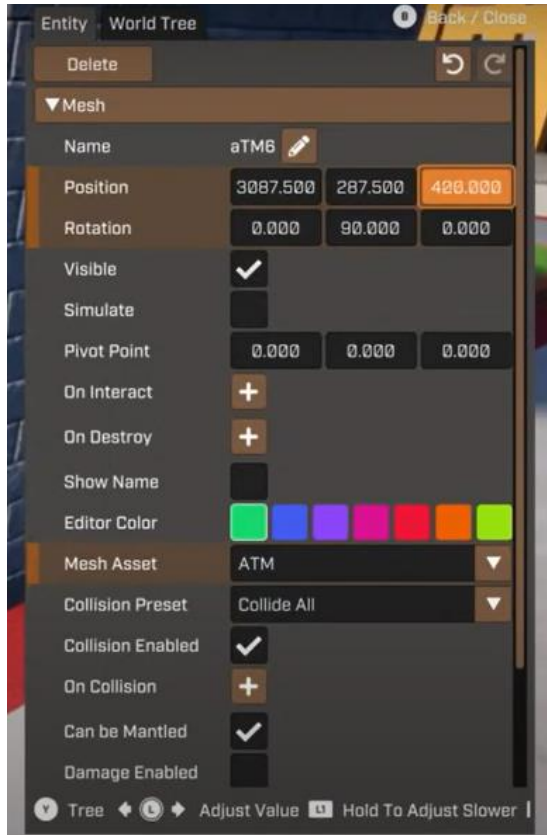
Oh, you guys are already in my group. Okay. Um, I'm gonna show you...

Caden then decided to show the friend and me around the park to see what he had created so far and discussed how he would enter the build into one of the competitions organized by Crayta. Suddenly, the three of us were teleported into the theme park's garden. As we moved around, I mistakenly moved an object out of place, so Caden said, "you have to be careful trying to move stuff." He told me to hold on. Immediately he tapped on the cuff on his left arm; the small screen appeared with the drone. In the meantime, he went back to the homepage to invite the friend back into the group in the social tab (the screen had earlier shown the friend was no longer in the game). Now, Caden was back to pick the oak tree I had misplaced. Next, he transformed the entity

(i.e., the tree oak) and tried to attach it to the bushes where he had placed it initially with the aid of the entity editor (see Figure 42 for illustration).¹⁷

Figure 42

The Entity Editor Window



Note. The entity editor shows some of the mesh properties (i.e., atm), such as its position, rotation, visibility, and others.

The screen showed the friend was now back in the game.

Caden further talked about having more rides in the park when I chipped in the question, “you’re basically going to have more rides?” To which he answered, “Yeah, basically going to have more rides.” He wished Stadia could have a webcam where

¹⁷ Entity is a physical item in the Crayta world, viewable in the world tree when editing the game.

people could see his face and talk to people directly since he streamed a lot on Stadia. He also spoke about how he was good with visuals but struggled with programming, especially when it comes to coding. However, he enjoyed coding in a program like Twine.¹⁸ He described Twine as an open-source narrative where you can do as little coding and further enlightened his listeners on how the programmer he worked with would send the Twine code into Ren'Py (my first time hearing the word).¹⁹

Moreover, Caden felt like Crayta was the kind of game needed to afford that opportunity to be creative and hopefully earn some money and obtain full-time employment. This time, I had left the game and returned to my vantage point as an observer. Then, his friend sent a message to him about adding a ticket machine as I heard Caden read out the message out loud “I am adding a ticket machine.”

Next, I saw a unicorn-like drone belonging to Caden's friend flying around. As Caden selected the black rubber voxels instead of the plain concrete ones, his friend engraved the word T-I-C-K-E-T on top of the entrance gate wall. Now, the friend was adding ticket machines to the park, adjusting its position via an entity asset editing box as they both continued to click the small screens on their left wrists. The social emote actions wheel appeared, and Caden did the *Chop Chop* emote by dusting off his hands on his knees and with delight, he said,

I love what's it called?

The *Chop Chop* because it reminds me of D-X

¹⁸ Twine, originally created by Chris Klimas in 2009, is an open-source tool for telling interactive, non-linear stories.

¹⁹ Ren'Py Visual novel engine is a free software game engine that facilitates visual novels. Ren'Py was developed by Tom “PyTom” Rothamel and initially released in 2004.

Yeah, I'm a wrestling nerd

But uh, AEW is better

I'm gonna be that guy.

As Caden and his friend continued building and creating, Caden continued talking,

Let's see

So, you buy your ticket, and then you walk in through here, and then I close that off.

Oh, let's see

I'm trying to think, should it be like let me see if. I just want to see if this works.

Um

(Caden read out loud his friend's comments) I'm gonna add a sign, so everyone

knows what to do

Okay, okay, dope!

Summary

In Chapter V, I provided a detailed description of my participant's lived experiences, and the cultural nuances that define the culture he was part of. In Chapter VI, I will discuss how I analyzed the data (Step 9) and then present my themes.

CHAPTER VI

Data Presentation and Analysis

Chapter Overview

In Chapter V, I described my informant's lived experiences and the cultural nuances that define the gaming culture he was part of. In Chapter VI, I will present my data analysis. First, I will discuss Braun and Clarke's (2012) six thematic maps that guided my data organization. Then, I label and define my selected themes.

Introduction

The analysis phase brings order to the data and organizes them into patterns, categories, and descriptive units, searching for relationships between the data (Brewer, 2000). After which, researchers can then move to the interpretation phase, which involves attaching meaning and significance to the analysis (Burns, 2019). For the study, data were coded from observations and artifacts using descriptive coding (Saldana, 2016). For the interviews and chat transcripts, I used In Vivo coding (Saldana, 2016) to gain insights into my informant's experiences on Crayta.

Moving into the data analysis was uneasy because I did not know where or how to begin. I was unsure what data to analyze first, how much data to include, and what not to include. Nevertheless, Burns (2019) noted that analysis begins with coding, and it is normal to feel such discomfort, which is part of the process to move the researcher to insights later.

This study explored a 26-year-old male gamer's literacies on Crayta within the larger Stadia videogaming culture. So, in this chapter, I present step 9 of Onwuegbuzie et al.'s (2012) analysis of data based on the following research questions:

1. How does a college-aged male engage in literacies through play and game creation on Crayta within the Stadia videogaming community?
2. How does a college-aged male gamer layer his literacies and employ the four components of the feedback loop while playing Crayta within the larger *Stadia* culture?
3. How does a college-aged male practice his literacies through play and game creation on Crayta within the larger *Stadia* culture?

Six-Phase Approach to Thematic Analysis

As mentioned in Chapter IV, the following six phases approach proposed by Braun and Clarke (2012) was used to identify the main themes in the data sets.

Phase 1

Familiarize Myself with the Data. After exporting the interviews into a Word document and transcribing the voice chat using the speech-to-text translation application (using the Otter app) manually and electronically, I immersed myself in the data and familiarized myself with the data sets by reading and rereading my transcripts and fieldnotes in order to absorb the content. In addition, I listened to the audio recordings to see if what I heard was transcribed correctly. Also, I watched the video streaming for observation repeatedly to search for meanings and patterns. I made notes on the data as I read through my data (e.g., writing comments in my journal and fieldnotes, highlighting some portions of the data to show items of interest). I read the words actively, analytically, and critically and started to think about what these data might mean. As Braun and Clarke (2012) advised, I asked the following questions: How does this participant make sense of their experiences, and what kind of world is revealed through

their accounts? As a result, I became intimately familiar with my data set's content and noticed things that were relevant to my research questions.

Phase 2

Generating Initial Codes. Once I had familiarized myself with the data and generated ideas about what was in the data, thus allowing me to recognize items that were potentially relevant to the research questions, I began the initial production of the codes from the data; a process that required me to keep revisiting the data. This process helped me reflect, interact with, and think about the data, helping me focus on specific characteristics of the data. Coding is a summary describing the contents of the data by pulling out the participants' language and concepts and providing interpretation for such (Saldana, 2016). Examples of the codes which also seemed to me as categories from my participant's actual words (i.e., In Vivo coding) were:

“Creating games on Crayta has been fun.”

"Fun connecting with people."

“Me looking up images on Google.”

“Use the imagine replicating things.”

"Do stuff to my characters."

“Build a theme park.”

“Trying to gain XP.”

I coded in small and large chunks, and very few lines were not coded because I had little or nothing to say about them, but I also had to bear in mind the inclusiveness that Braun and Clarke (2012) discussed because one does not know what might be relevant later on in the study. Braun and Clarke (2012) established that coding is

inclusive, thorough, and systematic. So, I included as much data as I could. I also made sure I coded each data item in its entirety before coding another data item. Finally, I identified an extract of data to code, wrote down the codes, and marked the text associated with it, such as the examples given above.

Phase 3

Searching for Themes. I noticed patterned responses or meanings within the data set for this phase. I collated clustered codes that seemed to share some unifying features to reflect and describe a coherent and meaningful pattern in the data. I then began to consider how the themes would come together to tell an overall story and tell a specific story about the data that answers my research questions. Again, this does not represent everything that was said in the data. As part of the searching for themes process, I employed the themeing the data method for the second coding cycle (Saldana, 2016) to organize the codes and themes found in the interview and chat data. Saldana (2016) identified several ways to do this. Themes can be extended phrases or sentence statements from participants that summarize what is happening in a unit of analysis. For instance, one might construct “In Vivo themes or thematic statements culled directly from the participants' own language...” (Saldana, 2016, p. 200). Phrases or statements such as “loved how welcoming the community was,” “everyone is willing to help,” and “all about connecting with people” were assembled under a broader theme, “It is always fun connecting with people.” Statements such as “come up with too many ideas,” the overall look of what I am thinking, “me looking up images on Google,” fell under a wider theme, “I use the imagine replicating...,” and “created Caden Wrestling

Entertainment,” “create the first theme park,” were under the theme, “You can create what you imagine.” See Table 4 for examples of these codes within themes.

Table 4

Examples of Coded Transcript with Themes

Transcript	Phrases/Statements for Coding	Theme
“Well, I was bored of video games and saw an Ad for this game. The game looked so fun, and I started up playing Stadia from that game. I joined the Discord and just loved how welcoming the community was, so, I stayed with it.”	Loved how welcoming the community was	It is always fun connecting with people.
“Well, everyone a part of the Crayta community is amazing and super friendly.”	Crayta community is amazing	
“Everyone is willing to help you if you ask...it’s always fun connecting with people.”	Everyone is willing to help	
“When creating, I come up with too many ideas. I wish I had a team of people to play with because I feel my ideas are very good.”	Come up with too many ideas	
“Oh, just the overall look of what I am thinking. And I use the imagine replicating or try to come close to replicating.”	The overall look of what I am thinking Use the imagine replicating	I use the imagine replicating.

(continued)

Transcript	Phrases/Statements for Coding	Theme
Like I said, since I'm a nerd for wrestling, I created a uh uh, it's called Caden Entertainment Wrestling (pseudonym) or something like that...	Created Caden Entertainment Wrestling	You can create what you imagine.
"I want to create the first theme park in Crayta."	Create the first theme park	

There were also some codes that I was unsure how to theme or how to classify as relevant to my research questions. Thus, I created a "miscellaneous theme" (Braun & Clarke, 2012, p. 65) to house the codes that belonged to this category. Braun and Clarke (2012) and Nowell et al. (2017) warned not to discard this category as they might play a significant role in adding to the details of the study later on or revisited to include in the fourth phase. After coding on hard-copy data, identifying the code name, and highlighting the portion of texts associated with it, I transferred it into a new Google spreadsheet by cutting and pasting text into it to make it easier for me to manage the coding. The Google spreadsheet served as a management tool for organizing similar or related text segments to assist my interpretation of the study. As Braun and Clarke (2012) explained, there is no right or wrong way to manage the physical process of coding. Figures 43 and 44 are representations of the first and second cycles of data collation.

Figure 43*Google Spreadsheet with Log of Collected data for First Cycle Coding*

Search the menus (Alt+/)			
H24			
	E	F	G
1			
2			
3		It's Always Fun Connecting with People (Connecting/Collaboration)	I use the imagine replicating things
4	creating games on Crayta is fun	Crayta community is cool	come up with too many ideas
5	making it fun	joined the Discord	my ideas are very good
6	fun to play	loved how welcoming the community was	I use for inspiration
7	excites me to continue	I stayed with it	overall look of what I am thinking
8	it feels worth it	everyone a part of the Crayta community is amazing and super friendly	I use the imagine replicating
9	Crayta is a better game	everyone is willing to help	You can create what you imagine
10	favorite game of all time	people playing on Crayta are all kinds.	"more in the mindset"
11	it was worth paying for	some experienced in game devt	google whatever it is I plan to build
12	Crayta's worth it	some are not	Look at images for reference
13	not just a waste of time	always fun connecting with people	the current game I am working on
14	game looked so fun	if they are playing from Stadia	has been a cool 2D Platformer project
15	it's a free-to-play game engine	since some people are playing from the Epic Games store.	I made first on paper
16	using familiar games similar to it	people are seeing my consistent posts	then built it into Crayta
17	but just a different style	someone soon may reach out	never done that before
18	visually it's a beautiful game.	Crayta replies to the screenshots	me looking up images on Google
19	was fun to work on	wish I had a team	
20			

Figure 44*Google Spreadsheet with Second Cycle Coding (Themeing the Data)*

Finding Themes			
File Edit View Insert Format Data Tools Extensions Help Last edit was seconds ago			
A1			
	F	G	H
1			
2			
3	It's Always Fun Connecting with People (Connecting/Collaboration)	I use the imagine replicating things (Problem-solving Iteracies)	I am a creative person/best at creating environments (Creativity and Innovation)
4	Crayta community is cool	come up with too many ideas	creating games on Crayta
5	joined the Discord	my ideas are very good	best at creating environments
6	loved how welcoming the community was	I use for inspiration	create the first Theme Park in Crayta
7	I stayed with it	overall look of what I am thinking	created a few games on Crayta
8	everyone a part of the Crayta community is amazing and super friendly	I use the imagine replicating	none of them are fully finished
9	everyone is willing to help	You can create what you imagine	me looking up images on Google
10	people playing on Crayta are all kinds.	"more in the mindset"	trying to make something
11	some experienced in game devt	google whatever it is I plan to build	I am a creative person
12	some are not	Look at images for reference	love to start things
13	always fun connecting with people	the current game I am working on	will jump into my games and start creating
14	if they are playing from Stadia	has been a cool 2D Platformer project	
15	since some people are playing from the Epic Games store.	I made first on paper	
16	people are seeing my consistent posts	then built it into Crayta	
17	someone soon may reach out	never done that before	
18	Crayta replies to the screenshots	me looking up images on Google	

Phase 4

Reviewing Potential Themes. Braun and Clarke (2012) suggested some key questions: (i) Does this theme tell me something useful about the data set and my research question? (ii) Are there enough meaningful data to support this theme? During this phase, I reviewed the coded data extracts for each theme to consider whether they

created a coherent pattern. Some codes were relocated under another theme. For example, all I have is a start of a studio, an entrance,” were moved under the theme, “You can create what you imagine.” Some themes collapsed into each other, while other themes needed to be broken down into separate themes. For example, statements such as, “I want to create the first Theme Park in Crayta,” “created a few games on Crayta,” I build from scratch,” “all I have is a start of a studio, an entrance,” were further broken into two separate themes, “You can create what you imagine,” and “I try using some prebuilt designs.” The codes under the themes “I try using some prebuilt designs” and “I use the imagine replicating” were collapsed to form one theme “I use the imagine replicating .” Some other codes overlapped with each other. For example, the code “2D platformer project” overlapped into two themes, “I use the imagine replicating” and “You can create what you imagine.”

Phase 5

Defining and Naming Themes. My participant’s actual words determined my theme names to describe his experiences and literacies in the Crayta culture. After themeing the data, I again reviewed the data set and created a core or overarching theme for each. According to Burns (2019), overarching themes require the researcher “to zoom out from the specifics of what people say and do (p. 116)” (as revealed in codes and the topical themes) to bring out those ideas or concepts these words and actions might mean. For instance, the theme “I use the imagine replicating” formed the overarching theme, critical/strategic thinking literacies.” The theme, “You can create what you imagine,” formed the overarching theme, creativity/innovation. Also, the theme “It is always fun connecting with people” made the overarching theme for collaboration. I am satisfied

with the themes as they were punchy, precise, and immediately gave me a sense of the theme. The themes also directly answered my research questions. Table 5 and Figure 45 show representations of the themes, overarching themes, and sample extracts from the data.

Table 5

Themes, Overarching Themes, and Sample Extracts

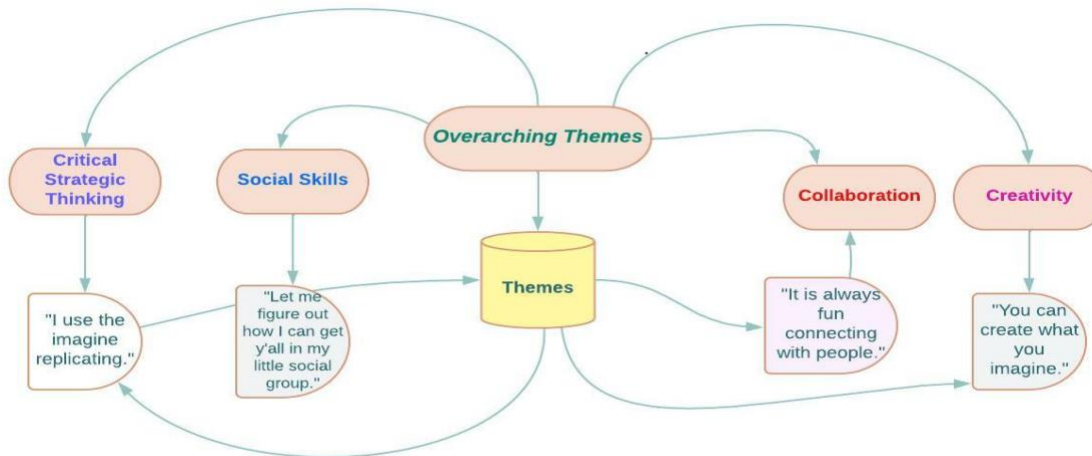
Theme (Participant's Actual Words)	Overarching Theme	Illustrative Data Extracts (Sample Quotes)
"You can create what you imagine."	Creativity/Innovation	<p>"For example, being I want to create the first theme park in Crayta..."</p> <p>"I have created a few games on Crayta, none of them are fully furnished..."</p> <p>"I always take screenshots of what I have and post them on Twitter."</p> <p>"I wanted to create an American version of <i>Squid Games</i>."</p> <p>"... all I have is a start of a studio, an entrance, and a tiny part of the main street done. I seriously hope to make full theme park soon with rides and different attractions."</p>
"It is always fun connecting with people."	Collaboration	<p>"The type of people playing on Crayta are all kinds. Some are experienced in game development, some are not. It is always fun, though, connecting with people, especially if they are playing from Stadia since some people play from the Epic Games store."</p>

(continued)

Theme (Participant's Actual Words)	Overarching Theme	Illustrative Data Extracts (Sample Quotes)
"I use the imagine replicating."	Critical Strategic Thinking	<p>"...but when it comes to storytelling, what I envision for the park itself, I can literally tell you what I'm thinking, and it would make sense..."</p> <p>"I just google whatever it is I plan to build. Look at images for references, then get to work."</p> <p>"The current game I am working on has been a cool 2D platformer project I made first on paper, then built into Crayta. I've never done that before..."</p>
"Let me figure out how I can get y' all in my little social group."	Social Skills	<p>"Yeah, no, I 'm serious I love when people want to talk to me."</p> <p>Oh! There's three people in the party!"</p>

Figure 45

A Chart Representing the Themes and Overarching Themes for the Study



Note. A mind map showing participant's exact words.

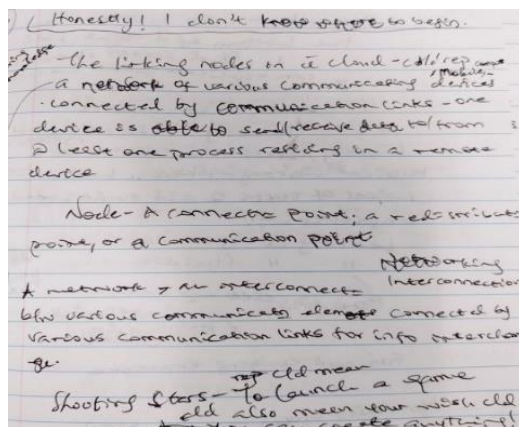
Phase 6

Producing the Report. Phase 6 begins when the researcher is ready to begin the final analysis and write-up after identifying the themes (Nowell et al., 2016).

Nonetheless, Braun and Clarke (2012) argued that this phase does not only begin at the end but that the process of writing and analysis are interwoven into a qualitative study—from the informal notes (the reflective journal and memos) to the more formal process of analysis and report writing. In other words, the ethnographer has been actively engaged and has been experiencing what is going on in the fieldnotes all along, not after they are written (Emerson et al., 2011). Further, part of the credibility and believability of a qualitative study is to keep methodological notes, trustworthiness notes, and audit trail notes to ease the reporting process (Nowell et al., 2017). Therefore, bringing together what I had gathered from the field was one of the most challenging yet intriguing moments. Honestly! I did not know where to begin as there were so many jigsaw puzzles for me to unravel. Figure 45 shows a sample of my reflection. Also, samples of jottings in my fieldnote and producing the report are shown in Figures 46 and 47.

Figure 46

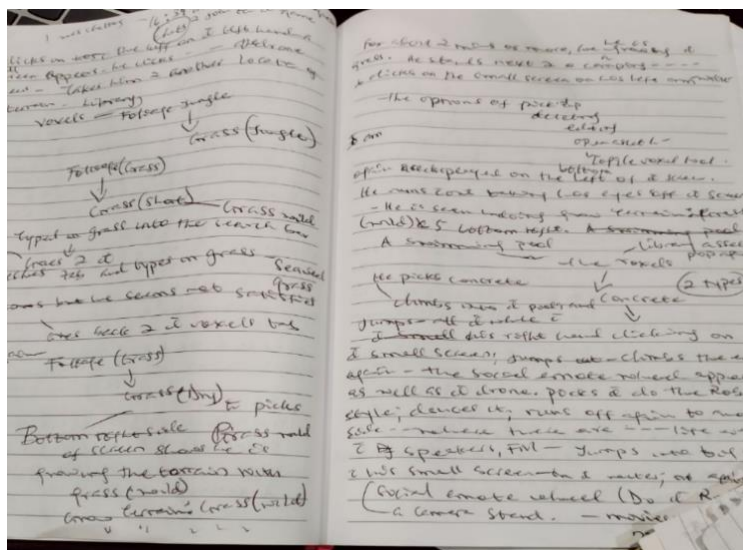
A Screenshot of My Reflective Journal



Note. The figure portrays a portion of my journal that captures my thoughts.

Figure 47

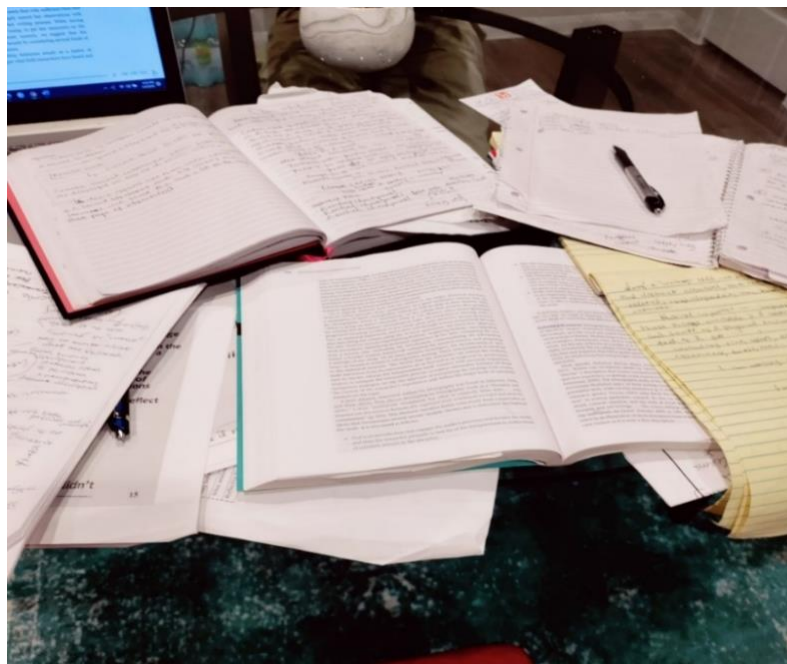
A Screenshot Showing a Portion of My Fieldnote



Note. The image shows notes jotted down during the observation process.

Figure 48

Moving from Field to Desk



Note. Producing my written research report.

In producing the final analysis and write-up of the report, Thorne (2000) urged researchers to communicate the logical processes by which findings developed clearly. In this way, the reader could render claims from such data sets credible and believable. As such, direct quotes (short or extensive passages) from participants may be included to give the reader a feel of the original texts. There is also the need to integrate data extracts within the analysis narrative to paint an overall picture of what the data represents (Nowell et al., 2017), leading to the presentation of themes.

Definitions and Labels for Selected Themes

The themes emerging from Caden's gaming experience on Crayta are discussed in the following sections:

Theme 1

It is Always Fun Connecting with People: Collaboration. The findings from my study indicated that my participant engaged in literacy practices through collaboration expressed through his own words, "It is always fun connecting with people," and actions. The ability of learners to collaborate with others has evolved with technology, and the moment of inspiration happens when the hard work of multiple individuals is combined (The Independence School, n.d). Learners do not become effective independent learners by themselves, but students' learning becomes effective when independent learning relies on productive interactions between their peers and teachers (Meyer, 2010). While Caden could do or create certain things independently, he struggled with other aspects. For example, he explained how he was best at creating environments but was not so good at programming. Caden also described how playing and creating games on Crayta had been fun, especially when he had someone or a team of people to play or create with.

Particularly he mentioned that he had help from one of his friends to help build the theme park. He talked about moments he got bored because he did not have anyone to create or collaborate with. Caden expressed this explicitly: “It is hard sometimes when I work on projects by myself because I get bored fast. It is simply due to no one to talk to or collaborate with while working on the project.” He noted that it was difficult to complete his servers and finish creating because he ran into moments when he needed someone to help or at least pick up from where he was. His following statements during my third interview with him supported this finding:

I created multiple games on Crayta.

They aren’t finished, though, but the two I am on of mine are- *Cadenland* (pseudonym), Theme Park, and *Cadenverse* (pseudonym) Live events.

I am still working on them since I need a team.

It’s hard doing everything yourself. But I have found one friend who’s been really helpful in assisting me when he has time to.

To confirm this struggle further, he admitted:

and I am also one of those people

where, I just start, like I said previously

I start a bunch of servers.

But I can’t finish it because I’m one of those people

where it’s I can envision stuff; it’s just as hard for me to actually create it.

So, if I had a team of people to help me

I can literally break down what the server should look like but whoever works with me is able, you know, put their spin onto it...

... yeah, I'm having a lot of trouble

figuring out what to build. You know what I mean?

Also, he was unsure what would be visually pleasing and interesting to people. As he stated during the in-game chat:

Yeah, I've been um building this for so long but

Like I said, I have just been trying to figure out

Um

What people would like and visually present something really interesting

Um

So, yeah

So, for an example, this would be main street inside the park and then a couple of stores

And you know maybe like a tiny theater

And then building up to and I like

I know

I'm trying to think. I don't think I'm gonna do a castle but

Um

I don't know (lol)

Like anyone's idea honestly like whoever is down to help is more than welcome to. And then I would have uh

What is it called?

Like a live opening event and stuff like that

Because yeah I want this park to, even though it has my name in it (lol)

I want whoever helps out with it, to, you know have their moments and all.

Not even a moment just you know, be, you know feel part of something

Because I'm all about connecting with people.

Another instance of this illustration was when his friend supported him by adding ticket machines, creating a sign, helping him furnish inside the buildings, and attaching other items to the theme park. My participant also joined in by scooting one of the machines back, asking the friend if they should scoot it forward or backward a little bit before deciding to even them out using the entity editor to adjust the position of the ticket machines. Caden's reply to his friend's message to him during the in-game chat about adding a ticket machine to the theme park provides a vivid description:

Okay, okay!

I'm coming over right now

Oh yeah, that makes sense (lol)

I could see that this actually does work perfect

I'm just gonna scoot this one back

A little bit or if it goes back

Oh whoops! Oh

Oops, (lol)

Oh, what! This one, should we scoot it back more a little bit, or should we scoot it forward?

I'm gonna, I'll scoot it backwards a little bit.

Oh, wrong one!

There we go!

Wait, how come I can't touch this one?

Wait, how come?

How come this one's not letting me touch it?

(Read out loud the prompt that had appeared on the bottom right side of the screen "you cannot pick up an entity that a player is stood on...", oh, okay!)

Never mind, let's just even those ones out.

There we go, okay.

Okay. Let's see.

Yeah, like I can't wait till the first day

Oh my God! (lol)

Okay

Do you think we should like make ticket thingies?

Or you know ticket um.

What's it called, ticket stall, not ticket stalls but kind of like walk-in thing

Oh my God!

You know what I am talking about

Like the entrance things.

Of theme parks- where like you can just kind of like walkthrough or while security's checking you and stuff like that?

Oh, oh, oh, oh, okay!

Okay cool

Oh yeah, I also gave you permission to the server as well.

Caden again reacted to an image his friend had created while designing the park entrance:

I like this.

Oh, that's funny.

I would never have thought of making a character looking this

That looks dope.

I like them because I can see changing his theme for Christmas
or something like that.

You know, you put a little Christmas hat on them if there are Christmas hats.

Uh

Let's see

So, you buy your ticket, and then you walk through here, and then I close that off.

Oh, let's see.

I'm trying to think, should it be like?... I just want to see if this works...

Many scholars have highlighted the importance of collaborative learning and how it should be valued in teaching and learning (Le et al., 2018; Karpati et al., 2017; Rojas-Drummond & Mercer, 2003; Scager et al., 2016; Shulsky et al., 2017; Whitton & Hollins, 2016). Collaborative learning is an educational approach to teaching and learning involving learners teaming up to “solve a problem, complete a task, or create a product” (Laal & Ghodsi (2012, p. 486). The learning process becomes interesting and engaging when learners work together despite the repetitive nature of the learning process, and also higher-level thinking skills are enhanced (Laal & Ghodsi (2012). The vignettes above illustrated this, e.g., Caden and his friend were able to team up to solve the problem of creating things that could make the park look appealing to people. Rojas-Drummond and Mercer (2003) related such conversation above to the “exploratory talk” (p. 102).

Exploratory talk, first recognized by the pioneering British educational researcher Douglas Barnes, is a way of using language for reasoning (Rojas-Drummond & Mercer, 2003). Learning becomes meaningful when partners can engage critically and constructively with each other's ideas. The relevant information is offered for joint consideration throughout the learning process in the exchange between Caden and his friend. Rojas-Drummond and Mercer (2003) asserted that the development of such ways of talking is rarely given attention or priority in the classrooms. Collaboration can lead to creativity, innovative thinking, problem-solving, and a deeper understanding of a problem or topic (Piper, 2016; The Independence School, n.d.).

Theme 2

You Can Create What You Imagine: Creativity and Innovation. Rahimi and Shute (2021) discussed that creativity is crucial for individuals' lives and identified it as one of the most important skills people need to thrive in blurring the boundaries between the physical and digital. Therefore, it is not surprising that creativity is at the highest level of learning objectives into levels of complexity and specificity in Bloom's taxonomy. Creativity in the taxonomy means to put things together differently by combining elements in a new pattern or proposing alternative solutions- beyond remembering, understanding, applying, analyzing, and evaluating (Wilson, 2016; Armstrong, 2010). For example, Caden was not just able to play, explore, and interact with others' worlds, but he could create his own world by applying the knowledge of what he knew and putting it into action. A World Economic Forum report, *The Future of Jobs*, showed that creativity and critical thinking were atop the skills needed for the fourth industrial revolution (Gray, 2016). Coming up with new ideas (creativity) is not enough. Still, innovation is necessary

to apply the new knowledge or existing ideas and turn them into actions (Piper, 2016). Hence, twenty-first-century education requires learners to conceptualize actively and skillfully, build, evaluate and find solutions to problems (Rosba et al., 2021).

Caden connecting his play experiences to life experiences, brought the theme of creativity and innovation to the fore. Caden expressed how videogames have been boring, and he thought gaming was now more in his mindset because whenever he played Crayta, he did not find himself as bored. Instead, he got even more creative, especially when additional persons built with him. Then, Caden started to talk about what he does with videogames and explained how he watched several videogame plays to inspire his creativity during the first interview:

I mean, video games over the years have been getting boring tbh [to be honest].

I mean, there's some cool games out there,
but legit, my hype for games is nowhere now.

I am more in the mindset.

It's my time to show the world what I am making
and release it to the world.

I also watch a ton of gameplay videos of games that I use for inspiration...

I use my projects to let my inner demons out.

I do stuff to my characters that I won't do in real life.

Then I make them go through something similar to me or worse.

My stories write themselves. I am just the person typing.

In addition, Caden described how he loves to start things and how many ideas come to him whenever he creates. He further mentioned that he had a base build of a

theme park he was making on Crayta, which he would call *Cadenland*. He emphasized this while being interviewed and during the in-game chat:

When creating, I come up with too many ideas.

I wish I had a team of people to play with

because I feel my ideas are very good.

For example, being I want to create the first theme park in Crayta...

and so...yeah, I really do want to create a theme park in Crayta and create a kind of like Disneyland a little bit like the initial thought of *Disneyland*, but I would call it *Cadenland*, and so yeah, but this particular build is kind of like a concert idea, where I just want to host like live events and stuff like that and you know have people come through hangout and if people will like to help build, they could.

Caden also talked about making the theme park an American version of the *Squid Games*, but more like a Disney approach (inspiration). “Yeah, I’m just trying to like build kind of like the main street for. You know, kind of looking a little like Disney-ish. *Disneyland*. In this brief discussion during the interview, Caden gave a hint about some of the items he had built and some of the things he expected to see at the park:

Well, so far, much isn’t done

because all I have is a start of a studio,

an entrance, and a tiny part of the main street done.

I seriously hope to make a full theme park soon

with rides and different attractions.

Caden's response to his friend adding items and creating a gate to the park's entrance during the in-game chat also indicated the creativity and some critical thinking going on within the space:

But oh! I really like the gate!

I mean, it kind of looks like prison a little bit, but should we like do something around it?

Because how it's like going through, or would that still make sense?

Doing something like this, maybe?

Oh, wait, no!

Oh no!

Never mind, that looks ugly, probably like that!

... Let's get this going right there and then just put it there.

There we go!

So, now, it looks more

Uh

I guess you could say nicer

Let's see, okay

Yeah, I think another problem

of mine, when I first started creating uh this park was that

I just needed like normal theme parks since it's like you know just,

well, it was just me, but um, is

do it in chunks, so like you know, start off with the entrance and then gradually

hmm. Wait! Why is the map kind of glitched? Do you see this?

Wait, is the map glitching for you too?

Furthermore, Caden discussed his passion for wrestling and how he had created an entertainment wrestling for Crayta via the in-game chat:

I also made ...

Like I said, since I'm a nerd for wrestling, I created a uh uh

It's called Caden entertainment wrestling or something like that

A CWE (lol)

But I want to hold off and kind of focus one thing at a time.

So, like

I think doing a theme park might be the best to do first

Um, but I don't know.

Another one was the creation of a story Caden had created on Crayta- a 2D platformer game, "Find Me a Rock (pseudonym)," he had made on paper and transferred digitally into Crayta, which he said he had never done before. This he revealed to me during his last interview session:

Well, the current game I am working on,

"Find Me a Rock," has been a cool 2D Platformer project

I made first on paper,

then built it into Crayta.

I've never done that before,

so, it was fun to work on.

Still somewhat working on it

because I need to fix a few things

and possibly add more levels...

With the 2D platformer, the plan is really when I think of levels,

I add them.

I mean, technically, now there are 4ish almost five levels.

The levels kinda just come to me randomly at this point.

In his discussion during the in-game chat, Caden further highlighted how Crayta fosters creativity and how the level of creativity garnered from such space could make players earn money and gain full-time employment:

I feel like games like Crayta are games we need, where it's like

We can be creative along with, you know, hopefully earning some money.

I mean, you know, I'm mainly about just being creative.

So, like the money would be cool.

And then obtaining full-time employment

or something like that would be cool as well.

But until then, you know, just gotta keep grinding on what I'm good at...

Theme 3

I use the Imagine Replicating: Critical Strategic Thinking. Critical strategic thinking mapped Caden's engagement with game creation which was made possible by the overall look of what he was thinking and using the imagination to build things from scratch and replicate or try to come close to replicating things. For example, he talked about how he enjoyed building overall, using some prebuilt designs for some constructions, and how he looked up images on Google for reference to create what he had imagined. Also, he stated how he felt comfortable about storytelling and could

literally tell what he had envisioned and was thinking about creating for the theme park. An example of this was Caden using the silver voxels to create the long pedestrian walk.

Another one was while making an entrance design for the theme park. Caden had initially painted this picture for his friend and envisioned a situation where people could walk into the park to buy tickets while security would check them in. In a short time, with the help of his friend, they were able to produce something to reflect this. At the same time, Caden could figure out if the rubber voxels would work rather than build with the concrete voxels and eventually replaced the black voxels with the white ashy-colored polystyrene voxels as he mounted some blocks for a big metal skeleton head (for making thickets) at the park entrance during his in-game chat session with me.

Uh, let's see, concrete, no not concrete

where is the black uh? No, not rubber or maybe rubber? Let's see

Let me see if this works,

Yeah, never mind.

I think rubber would work...

This imagination could also be seen in such projects as the 2D platformer game, which became possible by drawing out a layout on paper, looking at it, following the drawing, and creating something from paper to digital:

The only story I made really set for Crayta was the 2D platformer,

“Find Me a Rock.”

Though, I do bring inside some of my projects into Crayta to visualize the setting.

I don't really publish those,

but who knows, I might when I finish those ones?

They're really designed so I can show my team/future team a mockup build so, they can visualize the vision of it.

For some projects, I draw out a layout on paper so that I can transfer from paper to digital by just looking at it and following the drawing.

The findings further suggested that Caden was not just producing things, but some critical thinking was also going on. For instance, at some point, while creating in the park, I heard Caden say, "I will just drop it one lower (referring to the voxels)" as he ran his right hand on the small screen on his left arm. He continued, "It's like the street doesn't connect to it." Immediately he said this. He began moving buildings from side to side, moving a townhouse to a more suitable position, editing, and transforming the items with the aid of the entity editor. For example, the letter YUM was on the city mall building roof; he filled the word with voxels, replacing the empty spaces with rubber. He also questioned anytime things were out of place. For instance, he questioned when he noticed some random builds around the park (e.g., eucalyptus trees in front of the townhouse building) and where a piece of noisy music in the background was coming from. His conversation in this in-game chat session paints a picture:

What's with the tree thing?

That would be a hella random making a treehouse for kids like this high up.

That would be pretty funny.

I mean, it really wouldn't make logical sense...

Part of me is like this looks uneven, but I know it's even...

I don't know if this looks right

Now, I'm gonna hold off on that.

I got more important things to build

What's up with random building sculpture?

There we go!

Wait, what's up with these white random builds?

Okay

So, like what should we do now?

Like, uh, construction-wise?

I really want to find out where this music is coming from

Like, hold on

Okay.

So, this is a terrain

Oh wait, is it?

Wait, what's with this little square?

Okay. Is this square or wait?

Underground tunnel-like subway?

Uh...

You mean for like the last members or something?

Have an underground tunnel system

So, like the.... what's it called?- the staff can't see

Um

The staff can't see people moving around in the park.

Is that what you're talking about?

Something like that?

(Caden lets out a sigh)

Okay um.

Okay, I just went to publish an update.

Wait, what's the black thing?

So, what should we build?

Oh, oh oh!

I see what you are doing!

Wait, but shouldn't we build the park first!...

Critical thinking is understanding what is going on, making sense of the vast amount of information coming in daily through the TV, the media, or other sources of communication, and avoiding being manipulated. Humans should be able to question why certain things are happening or why people say certain things (University of Greenwich, 2021). In other words, critical thinking is being an active learner rather than a passive recipient of information. "Reflective thought begins when uncertainty and ambiguity is explained, which triggers a search for information appropriate to the dilemma" (Strohm & Baukus, 1995, p. 56). This does not mean that students should accept vague or unclear arguments in defining a problem or finding a solution, but critical thinking involves understanding how one has interpreted the evidence and seeing the implications of such decisions (Strohm & Baukus, 1995). It involves moving away from a static way of thinking and being open to the articulation of the problem, the identification (Strohm & Baukus, 1995), interpreting, analyzing, thinking, and questioning the alternatives, which all have positive learning outcomes for individuals'

social learning outcomes (Maksum et al., 2021). According to Maksum et al. (2021), “with social skills, students can have spoken, listening, logic and problem-solving skills that are strengthened by experiential interactions...” (p. 619).

Theme 4

Let Me Figure Out How I can Get Y’all in My Little Social Group: Social Skills. According to (Fisher and Morin (2017), social skills could come in the form of (i) necessary skills to interact, (ii) communication skills, (iii) team/group building skills, and (iv) problem-solving skills. All of these are made manifest by the findings of this study. Social skills are life skills (Sorlie et al., 2020) and are inseparable from the interactions made by students in the learning process (Maksum et al., 2021). Social skills are tied to one’s ability to solve problems and read social cues that arise from interaction with the social environment (Loukatari et al., 2019). Pieces of evidence of social skills in the study were the availability of the hangout spaces and how Caden was able to interact within those spaces, such as the hub—where players meet to show off their sprays, costumes, emotes, and a game chat—enabled on the social-group page to hear and talk to other players in the game or individuals that are not in the game. In addition, all of the interpersonal skills and collaboration in the game indicate social skills. Some of these included the skills to communicate and interact verbally with the tons of information popping up on the screen, the game cards (i.e., the large interactive screens at the hub), other players and characters in the game, such as the ice-cream seller, people watching and listening to him while streaming, and non-verbally, through gestures, body languages, such as emoting various expressions throughout his gameplay and enhancing his appearance by customizing his outfits, hair, spray, cuffs, head shape, body type, and

others through the social tab. Another clue was when my participant said he would add his friend and me to his “little” social group and disclosed that he would enter the theme park built into one of Crayta’s competitions. Caden’s sharing the game with us and granting the friend permission to the server to help build the theme park (as evidenced in the excerpts above), and then later on publishing the game publicly and sharing the game with the Crayta community was also an indication of such. Again, Caden could not contain his excitement when the friend and I joined in the game:

God! It’s like whenever because I’m like super excited at the same time

Because like people actually want to join me.

You know what I mean?

So, I will invite you, my bad, it’s taking so long

Okay, there.

Like I said, I get super excited over like some

like it’s not even small to me (shrills of excitement)

(Laughed out loud)

Yeah, no, I ‘m serious I love when people want to talk to me

like it’s just I feel so, I feel so good

but um

yeah

like I was saying um

I do have a theme park and stuff (giggled out loud)

Um

Like

Let’s see

Oh! There’s three people in the party!

Um

Here (sound of computer clicking)

But yeah, no, like I said. Crayta is the deal

I love Crayta

um

but oh!

Did someone just press play?

Oh, I got a raid to do (laughed out)!

This discovery revealed the influence of social interaction on quality knowledge creation; from the observation, this in-game session happened to be the most extended hours recorded, suggesting how social influences could impact individual behavior. For example, the thrills, the joy, and the excitement Caden felt when other people joined him. This finding also indicated that with accurate and relevant information from friends, Caden could learn and work comfortably and produce better results as he cooperatively worked and chatted with others, which encouraged him to be social and affected his enthusiasm for learning. For example, he could achieve much and build more structures in the park and on his live event show by collaborating with others who joined him to help build the games.

Also, the findings suggested Caden's positive perception of Crayta; apart from perceiving the space as a warm community, he loved Crayta. Furthermore, during one of his interviews, Caden confirmed that the gaming platform was his go-to game and his favorite game of all time, a free-to-play game engine using familiar games similar to it but with a different style. In addition, he commented on how it was visually a beautiful game.

Summary

In this chapter, I presented my data and analysis. First, I examined Braun and Clarke's (2012) six thematic maps that guided my data organization. Next, I labeled and defined my selected themes. In Chapter VII, I will focus on the summary, implications, and recommendations for further research in the next chapter. The chapter will also cover Onwuegbuzie et al. (2012) 's 10-13 process for qualitative research: (i) Step 10- Interpret data (ii) Step 11- Legitimate data (iii) Step 12- Write a qualitative research report, and (iv) Step 13- Re-evaluate research question(s).

CHAPTER VII

Summary, Implications, and Recommendations

In Chapter VI, I presented the analysis of my participant by providing evidence of themes emerging from the data sets. In Chapter VII, I will provide the readers with Onwuegbuzie et al. (2012) steps 10-13 of the 13-step process for qualitative research: (i) Step 10- Interpret data (ii) Step 11- Legitimate data (iii) Step 12- Write a qualitative research report, and (iv) Re-evaluate research question(s). Hence, this chapter includes the sections: (i) Summary (ii) Discussion of findings (iii) Discussion of findings in the context of the theoretical framework (iv) Discussion of finding and the literature review (v) Legitimation of findings (vi) Recommendations for future research (vii) Implications, and (viii) Conclusions.

Overview

Videogaming's popularity has sparked controversy, such as negative perceptions toward videogames as educational components (Rice, 2009). In particular, the media perceive videogames as a corrupting force (Adam, 2014), a cause of real-life violence, homicides, and crimes (American Psychological Association, 2015; The Amplifier Magazine, 2016; Suziedelyte, 2021), and having a negative influence on the society and no social value (Corriea, 2013). In addition, some others have noted violent games and aggressive behaviors among players (Anderson et al., 2010; Ferguson & Kilburn, 2009; Shafer, 2012). However, researchers have shown that videogames do not necessarily predict players' violent crime and aggression (Decamp, 2015; Ferguson, 2010; Przybylski & Mishkin, 2016; Surette & Maze, 2015).

Scholars revealed that videogaming improves literacy skills (Abrams, 2009; Apperley & Beavis, 2011; Barr, 2017; Barr, 2019; Bourgonjon, 2014; Camilleri et al., 2013; Gerber, 2008; Jerrett et al., 2017; Kronenberg, 2016; Reich, 2021; Scolari & Contreras-Espinosa, 2019; Steinkuehler & King, 2009; Steinkuehler, 2010; Terry & Malik, 2018). It is also worth noting that the participant within the demographics chosen for this study fall into the group that Ingraham (2017) disclosed is spending more time playing videogames. According to Ingraham (2017), the number of individuals aged fifteen and older playing videogames shot up to over 11% more than in previous years (Ingraham, 2017). The Des Moines Register (2018) further reported that males aged 21 to 30 increased their leisure hours and spent more time playing videogames. As a result, in this ethnographic case study, I sought to understand a complex phenomenon by unveiling the literacies found in a 26-year-old male's videogaming.

Discussion of Findings

The data analysis uncovered four themes spanning the observations, interviews, in-game chats, and game-based artifacts. Having analyzed the data, I re-examined the research questions and how the data collected addressed them. The research questions were:

1. How does a college-aged male engage in literacies through play and game creation on Crayta within the Stadia videogaming community?
2. How does a college-aged male layer his literacies and employ the four components of the feedback loop while playing Crayta within the larger Stadia culture?

3. How does a college-aged male practice his literacies through play and game creation on Crayta within the larger Stadia culture?

Step 10: Interpret Data

Research Question 1

How does a College-aged Male Engage in Literacies Practices through Play and Game Creation on Crayta within the Larger Stadia Culture? The findings from my study indicated that my participant engaged in literacy practices through play and game creation in diverse ways. First, through play was the desire for collaboration with other players. For example, my participant revealed how he struggled to build and had been building the theme park for so long because he did not find anyone to collaborate with.

As an example, during an interview session, he disclosed, “I need more friends who play Crayta that would be down to help... The Crayta community is cool, but I just haven’t found my plus one yet.” He also elucidated this response when I asked about his experience while creating one of his games on Crayta:

...I wish I had a team of people to play with because I feel my ideas are very good. For example, being I want to create the first Theme Park in Crayta. Also, I just need assistance with building since I have so many incomplete servers...

Like I said previously, I am also one of those people where I just start a bunch of servers, but I can’t finish it because I’m one of those people where I can envision stuff. It’s just as hard for me to actually create it. So, if I had a team of people to help me, I can literally break down what you know... whoever works with me is able to put their spin onto it...

Another way my participant engaged in literacies through play was social skills with the availability of the hangout spaces, such as the hub—where players meet to show off their sprays, costumes, emotes, and a game chat—enabled on the social-group page to hear and talk to other players in the game. Another clue was when Caden added his friend and me to his social group by sharing the game with us and granting the friend permission to the server to help build the theme park, and then later on publishing the game publicly and sharing the game with the Crayta community.

Critical strategic thinking also mapped my participant's engagement with game creation which was made possible by the overall look of what he was thinking and using his imagination to reproduce things. An example of this was Caden choosing the rubber voxels to build rather than the concrete voxels and replacing the black voxels with the white ashy-colored polystyrene voxels while creating the theme park. Another instance was when he talked through the voice chat about what he had envisioned and created to make a complete theme park: the main street, a couple of stores, and a tiny theatre. With this in mind, Caden indicated that he was probably not building a castle.

Research Question 2

How does a College-aged Male Gamer Layer his Literacies and Employ the Four Components of the Feedback Loop while Playing Crayta within the Larger Stadia Culture? My definition of literacies here includes instant messaging, social networking, video production, crafting game scripts, visuals, images, gestures, artifacts, graphs, symbols, sounds, music, movement, videos, and videogames. Simply put, these literacies do not follow the conventional order. As earlier mentioned, Manguel (1996) classified them as the acts of reading.

My participant's layered literacies (Abrams, 2015) were revealed as he made fluid connections and in and out of game moments, navigating through the game pages that link to other texts—the main menu, the play page, the battle pass, create, social, customize, and store pages. These topics on the screen helped him find related information, graphics, symbols, or images (hypertexts). Then, connecting these play experiences to life experiences brought creativity and innovation, and problem-solving skills to bear. For example, he applied his prior knowledge of the *Squid Games* to build an American version with a Disney-like approach. His words were: "I wanted to create an American version of uh, what is it called, um? Oh my God! *Squid Games*. So, like I have it..." Also, evidence in the findings was when he finished the *Chop Chop* emote, then connected it to how it reminded him of D-Generation X (an American professional wrestling stable) and, therefore, he talked about inventing wrestling entertainment on Crayta due to his love for wrestling.

Findings indicated that he was multitasking with a controller. For instance, in-between plays, he would go back and forth to the main menu to read the creator's challenge for the day, claim a reward, customize his outfit, invite a friend to join, play, create, edit, or craft his own game or a friend's game script, publish his updated game, create a visual that goes along with the game he had published. Interacting with diverse texts (verbal, non-verbal, written, and oral), watching Crayta's livestreams on YouTube, transferring games from paper to digital, looking up images on Google to plan, executing the plan, taking screenshots of what he had built, posting them on Twitter, and streaming his play sessions on YouTube also defined some of the ways my participant layered his literacies:

I have created a few games on Crayta
none of them are fully furnished.

The resources and materials used are typically me looking up images on Google
and trying to make something, depending on what I am working on.

Well, with my current builds,

I always take screenshots of what I have and post them on Twitter.

Crayta replies to the screenshots, which always excites me to continue what I
started.

Again, the feedback loop is described as the meaningful experiences that players
bring individually or collectively to bear in game plays (i.e., in-the-moment experiences,
prior knowledge, on-and off-screen feedback, and others) iteratively influenced by game
mechanics and narratives. These practices are iterative, reflexive, and interest-driven, and
players are bound to learn via trial and error, which is critical to their success (Abrams &
Gerber, 2013, 2021; Gerber & Abrams, 2018).

In employing the four components of the feedback loop (Abrams & Gerber,
2021), the findings revealed- (i) how Caden negotiated Crayta's creative mode to build
the main street, an entrance, a start of a studio, and pre-knowledge on building a park
with the name, *Cadenland*, with the initial thought of *Disneyland* (objectives and rules),
(ii) progress bars—e.g., visual displays of real-time information displayed on the screen
throughout Caden's gameplay to show his progress in the game, e.g., the information on
screen to show his time and how many beach balls he has collected (iii) in-game maps to
help players know the other players' location in the game, e.g., the terrain Caden creates
things on, (iv) leaderboards, e.g., Caden used the information on the leaderboard to boost

his scores while competing with the other players in the hub. I will expand this more in my discussion of findings in the context of the theoretical framework.

Research Question 3

How does a College-aged Male Practice his Literacies through Play and Game Creation on Crayta? During my analysis, the findings from my study indicated that the answers to this question were no different from the findings discovered in response to the first research question. In other words, the questions were synonymous with each other, yielding the same findings. Therefore, again, I refined and constrained my research questions to include the two following sub questions:

1. How does a college-aged male engage in literacies through play and game creation on *Crayta* within the larger Stadia culture?
2. How does a college-aged male gamer layer his literacies and employ the four components of the feedback loop while playing *Crayta* within the larger Stadia culture?

Discussion of Findings in the Context of the Theoretical Framework

Layered Literacies

Lucci et al. (2016) suggested that layered literacies enable students to advance critical thinking by encouraging them to develop their understanding of texts and recreate notions from books creatively. Fundamentally, Vygotsky's (1978) theory of literacy development upheld that culture is significant in learning and that the tool of the culture plays a central role in the meaning-making process. Hence, my participant looked up images on Google to plan what he planned to build and looked at images for reference. For example, he created a 2D platformer project on paper and then transferred it to digital

(i.e., the Crayta platform), which he had never done before. As earlier noted, literacies that are layered are found in digital technologies like videogames that use images, symbols, words, and in-text that manipulate the formats using fonts or margins to mean different things to readers. Layering literacy requires active participation, ideation, and interpretation for the student to comprehend digital and non-digital literacies (Abrams, 2017; Abrams & Gerber, 2015; Lucci et al., 2016). For example, Caden used progressive instructions to create and move from one level to another by interacting with diverse texts, such as the drone, the small screen on his left arm, the ice-cream seller, interpreting the symbols, images, sounds, and gestures throughout the game.

Another example of this finding was reading and understanding each game quest popping up on the screen, otherwise known as the daily creator challenges. E.g., a daily creator challenge read: “Pick up ten bags of money” after Caden had picked up the ten bags of money, the screen showed he had completed a round of the game, earning 240 XP. However, the main page showed Caden still needed 40XP to make it to the next level.

The Four Components of the Feedback Loop

Objectives and Rules. Objectives and rules focus on the ‘whys’ and ‘hows’ of the play, and both of these apply to digital and non-digital games (Gerber & Abrams, 2018). Gerber and Abrams (2018) ascertained that the objectives could include the players’ immediate and overall goals, while rules illustrate achieving those goals.

Examples of these rules include but are not limited to the types of acceptable moves and those that are not, time limits, turn-taking procedures, and ways to acquire points and brace up for a more challenging task. Based on my participant’s experiences, he

negotiated Crayta's creative mode to achieve the goal of creating a theme park, a live event show, a wrestling ring, transferring a 2D platformer paper to a digital game, and then helping out his friends to complete their constructions. There were time limits popping up on the screen to show his progress for each gameplay, and he always got notifications whenever he did not need an item at a particular time, joined the wrong team, made a wrong move, took the wrong direction, or had reached the checkpoint. For example, when a prompt emerged on the screen informing him that a motor race was starting in 30 seconds at a car rental, he should hurry over and grab a vehicle. A prompt appeared "wrong checkpoint," indicating that he took the wrong path on starting the race. So, he got out of the car to restart the race.

Furthermore, every time he was on track and had completed the game, there would be the notice "Reached Checkpoint!" or "Reached Checkpoint Final," which was the time recorded for each competitor. In addition, the time kept ticking down while Caden was playing the shell collection game and gathering the beach balls. As he completed the task, a prompt showed up, "*Collect shells to earn points on the time limit! Some shells are worth more points.*" Another indicator of this component was when he could not scoot back one of the ATMs (i.e., the ticket machine) created by his friend because a notice had appeared on the screen, "You cannot pick up an entity that a player stood on."

Progress Bars. Progress bars are in-the-moment actions and visual displays of players' progress or status throughout gaming (Abrams & Gerber, 2021). Instances of these in-the-moment actions might consist of players' score; task-based accomplishments; time, opportunities, or turns remaining, negotiating turn-taking,

abilities, powers, degree of strengths, engaging in non-game related small talk, game-related banter, the types of ammunition or moves available, and others (Abrams & Gerber, 2013, 2021). Siemens et al. (2015) posited that for players to be meaningfully engaged and motivated during gameplay, “a player requires focused goals, challenging tasks, clear and compelling standards, protection from failure, affirmation, novelty, choice, authenticity, and, interestingly, affiliation with others (p. 4). Siemens et al. (2015) further added that when individuals discern that they are making satisfying progress towards achieving a set goal, they feel confident in improving their skills and offer a sense of direction. Hence, progress feedback increases a player’s perceived competence during gameplay, which also was integral to my participant’s gaming engagement on *Crayta*. Caden’s gameplays showed that progress bars were measured by some forms of a feedback system, such as levels, laps, battle pass rewards, reward icons (e.g., silver or bronze), and XPs earned.²⁰ For instance, Caden joined the sorcerer’s team, whose mission was to battle beside the cunning sorcerers and defend the magic forest. He gained XPs as he completed creator challenges and unlocked several cosmetics (e.g., battle pass rewards, outfits, emotes, and drone trails), progressing throughout *Crayta*’s new season—*Strength and Sorcery*.²¹ The progress bars onscreen showed how he had started on a level 0, needing 50XP, to level 2, needing 1,350XP to make it to the next level, and eventually ending the game, leveling up to 6, needing 1510XP to progress to the next level. Moreover, any time he finished each challenge, the screen showed “creator challenge

²⁰ XP is an abbreviation for experience points a player can earn in a game.

²¹ Strength and Sorcery battle pass in *Crayta* takes players to a magical realm, where they can be a mage, a fairy, or a warrior.

completed” or “updated.” Results also showed that he had two silver progress in about five games, ranked bronze and three bronze progress, and was unranked.

In Game-Maps. In game-maps help players know where they are located per time in the game regarding the game missions and others (i.e., teammates and opponents) (Abrams & Gerber, 2013, 2021). According to Abrams and Gerber (2021), in-game maps can take many forms but are not limited to spaces such as a “racing track, an outdoor field, a room in a building, and a corridor in a maze (p. 28).” In the context of this study, the hub is a good representation of this. Through the location of where other players were, what they were doing, and the real-time information displayed in the hub through scroll-like stories, Caden was able to choose his affiliation (Sorcerers) out of two teams—Knight and Sorcerers. The news had read, “Choose your affiliation! In this game, teams, knights, and sorcerers battle across the hub. Which side will you fight for?” Although deciding became hard for him at first, looking up the information and understanding the sorcerers’ task made him reflect, strategize, and settle for the team later on. His following thoughts portrayed this while observing one of his in-game sessions:

Do I want to be a knight, sorcerer?

Oh! This is hard! It’s like I like magic, but then I don’t. I just like to let you know.

Oh, this is so hard! The sorcerers are just sound kind of cool to defend them because it’s like, you know, I’m defending a forest. You know what I mean?

Because knights feel like raiders stuff, and it’s like I get kind of tired of that.

Oh! This is hard. Oh! This is so hard! Cunning, sorry, I’m gonna be a sorcerer.

Through this real-time information, Caden also knew he had to venture into the enemy's territory to look for an item he needed in order to achieve his team's short-term and long-term goal—to battle beside the cunning sorcerers and defend the magic forest.

Leaderboards. Leaderboards publicly display players' ranks and provide post-game information, including players with the highest scores and counterparts' scores and other statistics (Abrams & Gerber, 2013, 2021). In this study, at one point or the other, the leaderboards displayed all players' ranks and the ones with the highest and least scores and finishing times. Therefore, this information allowed Caden to reflect on the necessary changes he needed to make in future competitions to boost his self-confidence. For instance, Caden joined the other players in the hub to compete in an obstacle course game. The two giant leaderboards prompted Caden to engage in all four elements of the feedback loop to reflect throughout his gameplay. Caden used the information from the leaderboards to help improve his positioning from the last position to fourth place while competing in the game.

Another example was while playing the red light, green light game, in which he was trying to finish the game within 1 minute and 30 seconds. After trying to reach the goal several times, "it seems impossible," he thought out loud. The result on the leaderboard showed Caden ended the race in a new personal best time of 1 minute 49 seconds. Again, the leaderboard displayed "leaderboard updated" with the overall best time of all players, as Caden appeared in 25th place.

Discussion of Findings and the Literature Review

The vast knowledge that learners gain from videogaming helps them improve their literacy skills, i.e., the way they make sense of the world (Abrams, 2009; Gerber,

2008; Gee, 2007; Steinkuehler, 2010). Hence, they can make sense of their culture, life, and identity (Ronksley-Pavia & Barton, 2020). Moreover, to be fully literate in today's contemporary world, literacy and media literacy, though essential, are not adequate to capture the literacies and ingenuity emerging from videogaming (Zimmerman, 2013), especially with the influx of daily technology revolutionizing literacy practices among gamers.

Several studies have drawn attention to the negative impacts of videogaming rather than looking at a bigger picture by also creating awareness on the merits that are present, and by so doing, creating a balance (Granic et al., 2014), and Apperley and Beavis (2013) as well suggested that the growth in the usage of the new media, especially among videogame players should raise significant questions amidst researchers.

Given the extensive literature that informed the present study, I described the findings regarding my participant's engagement with literacies on Crayta within the larger Stadia community as follows:

Collaboration

As previously mentioned in Chapter II, focusing on creativity, communication and collaboration are essential to 21st-century learners. From Vygotsky's viewpoint, the capability to learn through dialogue and interactions with others is crucial to knowledge creation (Churcher et al., 2014). Collaboration allows players to be creative and receive peer mentoring to improve their skills and boost their self-image and self-esteem (Kaparti et al., 2017). In addition, such platforms as videogaming create opportunities for global networking for players as they share knowledge and visual repertoires (Kaparti et al., 2017). Regardless of players' physical distance, they can learn together, assess artifacts,

and share their work across sites (Magnifico et al., 2013). The findings of this study indicate that collaboration is one of the prominent themes defining my participant's videogaming. Caden described the community as amazing, super friendly, and people always willing to help if anyone asked for it. He described the types of people playing on Crayta as all kinds; while some were experienced, some were not. He found it exciting to connect with people, especially if they were playing from Stadia since some also played from the *Epic Games Store*.²² This finding also implies cross-platform or cross-play videogaming, which means that there are other individuals from another gaming platform coming to play *Crayta* on Stadia.²³ A typical example of knowledge sharing, and learning was when Caden was educating his listeners while streaming one of his gaming sessions about a coding program—Twine. Below is the evidence of that conversation:

Like I enjoy if it's like coding in a program like Twine. Like I don't know if any of you are familiar with Twine, but Twine is like an open-source narrative where you can do as little coding if you really want to.

But like typically, the most code to understand in Twine is just like bracketing or I think, yeah, that's the correct term- like the brackets, um to go to a different passage

so, like you know

this is a perfect example

I use Twine to make my team's indie game

²² Epic Games Store is a digital videogaming storefront for Microsoft Windows and macOS. Stadia and Epic Games Store are the two videogaming platforms through which players can access Crayta.

²³ Cross-platform means the ability of a player using a game on a specific videogame console to play alongside a player on a different hardware platform, e.g., another console or a computer.

Uh, we used Twine, and then we sent the Twine code into Ren'py,

And then my artist, also a programmer

Uh, she will get that code from Twine and put it in Ren'py and so

That's initially how we did that, and so

um yeah! I didn't have to do much code. So, yeah, it's a fun project.

Another illustration indicating this collaboration is that players could enter into their friends' games to either play, edit, or create (if the game's creator permits the editing) along with that friend. For instance, Caden went into one of his friend's games and, through the interaction with the small screen on his left arm, went into the asset library to attach entities such as milkshake, urban house kitchen unit, doors, stool, diner windows, TVs, and others. He was not just adding these objects but was spawning (i.e., duplicating) and transforming them using the entity editor to adjust their positions. If my participant did not want an object, he would drop it or delete it and go back to the asset library to pick another one. Furthermore, he often typed in whatever he was searching for into the filter bar, opening a drop-down list of the different filter options. Example., he typed "drink" into the filter bar, and different types of drinks showed up like the beach drink, fruit drink, drink shaker, drink can, and tropical drink. He chose the beach drink and then spawned it by making copies and placing the duplicates in the different sections of the countertops and tables in a space like a restaurant. He repeated the same process for the menu (diner/cafe), fork, plates, diner booth, and the (diner) table.

Social Skills

According to Loton (2007), social skills are clusters of skills used in "decoding, sending, and regulating non-verbal and verbal information in order to facilitate positive

and adaptive social interactions” (p. 31). The emotes for social actions reactions of players is one of such in this study. My participant used the social actions emote wheel to express different emotions throughout his gameplay. Examples included the *Chop Chop* emote, which he expressed by dusting off his hands on his knees to indicate a job completed, the *Yasss* emote by clenching his right hand, holding it aloft in a show of accomplishment, the *In your own time* emote by bending a little bit forward and pointing to the cuff on his arm to indicate time. The findings suggest that a game creator could also use another game creator’s drone for gameplay. For instance, Caden's friends could join him in expressing any chosen emote using his drone, and he could join his friends’ too.

Findings also show that the hub represents a social space where players meet with friends to say hello, meet, or dance around before jumping into their major games. In addition, the hub allows new users to find initial games and take part in mini-games connected to battle pass themes and various seasonal events. Furthermore, the social tab on the main menu allowed Caden to do a lot of social things, such as creating his own group of friends, starting a group with others to build or collaborate on a game, inviting other players to join a game, and a crowd play feature that allowed friends and streamers to jump into the game, play alongside, or simply watch as he streamed.

Critical Strategic Thinking

Through experiential learning spaces provided by videogames, learners can identify the deeper meaning of texts in diverse, meaningful ways as they are encouraged to construct their understanding of particular events in the game (Bacalja, 2020).

Videogames have been advanced to incorporate semiotic social spaces that build the

player's confidence in reading text with a deeper meaning, including poetry, as they acquire the skills to see more than what is presented on the surface (Vazquez-Calvo et al., 2019). Narrative-driven games provide safe spaces for players to think and discuss literary moments, encouraging them to feel like writers and respond as critics (Hein et al., 2016). Strategic thinking utilizes intuition and creativity and is mostly deployed in areas of problem solving. It is highly creative, innovative, and unconventional method of thinking to develop something new (Haycock et al., 2012).

In this study, my participant's literacies showed a critical engagement beyond the text to solve problems. For example, he moved beyond the basics of just adding, removing, or deleting voxels to the advanced level of extruding the voxels in any direction to adding props, dressing his world, and creating a visual narrative of his game (e.g., the theme park). Caden took his editorial skills beyond adjusting the position and rotation of an entity with the entity editor but selecting the door script and creating the script components for the door. At another time, he clicked on the Worlds tab (an advanced game mode) to create a new world. He installed the option that said, "A lot of highly detailed houses and buildings to use in your games with three themes: Tropical, industrial and town." He further went into the 'create new world mesh,' then picked an industrial building to include in creating his live events game. As earlier said, the world tab moves the players beyond the boundaries to do many things. These include but are not limited to ramping up the mood of a game, changing the sky or the moon color, moving the position of the sun, and changing the time of day. This was evidenced in the following Caden's conversation with his friend while building the theme park:

Uh, okay, just in advance to go into music and find (oh okay)

So, F5 okay

Um

So, F5 goes to music, okay

F5

Uh, wait, is that is O for console?

Oh wait, no

Tab

Okay

Um

Got it okay, music

Wait, is this music for my oh no!

I have to go to the world again

Wait, so do I have to go

Oops!

Do I have to like go into anything specific?

Template

World

Voxel messages, no eye dropper

Volume

Volume select

Preview level

Atmosphere

Mountain the clouds

Oh

Oh no

I could play with this

Oh, that's dope!

Yo (lol)

This is cool

Yeah, I kind of haven't played around

Oh my God!

Okay, this is pretty cool

Uh sun

Okay

Time of Day

Allow photos

Oh

Grow, extrude

That terrain is locked

Um

(music)- plays

Okay

Wait, I don't want to create a new world, uh

(Caden sings A Whole New World from Disney's 1992 animated feature film

Aladdin)

I know I'm butchering that song, but um

Yea

Like I said, the noise is pretty bad

Yeah (lol)

I'm trying to find this music

Um

Oh

Again, Caden's interactions, such as the description above, inform how players navigate their way through gaming and remind us that playing and learning go hand-in-hand, enabling players to solve seemingly complex problems while gaming. Caden is motivated and engaged with what Yang et al. (2021) referred to as the "flow state" (p. 1056) to persist until the problem is solved.²⁴ Once Caden maneuvered his way through a level, he advanced to the next level.

Having discussed the findings of the study based on the research questions guiding the study, the context of the theoretical framework, and the literature review, I will discuss next how I ensured the accuracy and quality of the data. In validating and legitimating the data, I applied Abib et al.'s (2019) validities and followed Leech and Onwuegbuzie's (2007b) procedures.

Step 11: Validating and Legitimizing the Data

Validity in Qualitative Research

There is no one definition of validity and no specific method to yield reliable conclusions (Leech & Onwuegbuzie, 2007b). Leech and Onwuegbuzie (2007b) maintained that validity is considered with purposes and circumstances. Similarly, Mays

²⁴ Flow state is the ultimate engagement on the task at hand.

(2000) asserted that there is no one way but several ways of improving validity, which is left at the researcher's discretion and the reader's. On the other hand, Abib et al. (2019) postulated that validity in qualitative research has diverse meanings like rigor, trustworthiness, appropriateness, quality, accuracy, consistency, and a variety of other terms. Thus, Abib et al.'s (2019) three most important validity types for qualitative research were evident in the study. These include descriptive, interpretative, and theoretical validities.

Descriptive Validity. Descriptive validity means that the researcher does not in any way interfere with the information and data. Scenarios and facts were reported as seen and heard. Observations and details were mutually reliant on the theory used for the study.

Interpretive Validity. Interpretive validity means the researcher's responsiveness and thought to capture and depict the meaning of the studied individuals' events, objects, and behaviors, which was evident in the study.

Theoretical Validity. Theoretical validity ensures that the explanation generated through research analysis is consistent with the data. Put differently, the researcher did not lead the data but followed where the data led. In this study, findings were based on where the data led.

Assessing and Legitimizing the Data

Also, to help evaluate legitimation or increase legitimation, Leech and Onwuegbuzie (2007b) suggested 24 strategies for ruling in or ruling out rival interpretations of data. I employed not all, but some out of the 24 strategies, which are summarized below to assess the truth value of the study:

Prolonged Engagement. Prolonged engagement means spending adequate time conducting a study to build rapport with the participants enough to gain their trust and verify misrepresentations caused by irregularities in the course of research (Leech & Onwuegbuzie, 2007b). I built rapport with my participant and gained his trust over time.

Persistent Observation. Persistent observation is about finding and focusing extensively on attributes, characteristics, and traits most crucial to the phenomena under observation (Leech & Onwuegbuzie, 2007b). I engaged in a persistent observation for a 3-month period, focusing on attributes and traits most essential for the study.

Triangulation. Triangulation applies multiple data sources to validate results and get supporting evidence (Leech & Onwuegbuzie, 2007b). Fusch and Ness (2015) identified four types of triangulations, data triangulation for connecting people, time, and space; investigator triangulation for connecting the findings from multiple researchers in a study; theory triangulation for using and linking multiple theoretical strategies; and methodological triangulation for linking data from multiple data methods. Data triangulation is one approach to data saturation (Fusch & Ness, 2015). In this study, I utilized triangulation using observation (fieldnotes), reflective journals, in-game chats, interviews, and artifacts to enhance credibility.

Leaving an Audit Trail. Leaving an audit trail involves the investigator keeping records and data obtained from the study (Leech & Onwuegbuzie, 2007b). The audit trail presents the researcher's evidence on the study's theoretical and methodological process (Nowell et al., 2017). "A study and its findings are auditable when another researcher can clearly follow the decision trail" (Nowell et al., 2017, p. 3). I used observations, interview

transcripts, artifacts, chats, reflective journals, fieldnotes to create a clear audit trail throughout the study.

Member Checking/Informant Feedback. Member checking can be formal or informal, and the researchers can thoroughly obtain feedback about their data. The participants are privileged to play a vital role in reviewing the report's credibility (Leech & Onwuegbuzie, 2007b) to ensure the accuracy of information provided by the researcher. I sent electronic copies of the interviews and chats for my participant to review and check if they were changes needed after the transcription of the chats and interviews. After my participant had checked the accuracy of the report, I began my analysis.

Weighting the Evidence. Here, more robust data are given more weight than weaker data. Leech and Onwuegbuzie (2007b) gave examples of situations when data are stronger: (i) when they are gathered after prolonged engagement, (ii) when they are studied or reported immediately, (iii) when the fieldworker is trustworthy; (iv) when data are garnered in informal settings. The findings for the study were grounded based on these requirements.

Checking for Representativeness. Leech and Onwuegbuzie (2007b) affirmed that this legitimization correlates to internal and external generalizability. According to the authors, incorrect generalizations occur in the following instances:

- (i) when non-representative informants are sampled
- (ii) generalizations are made from non-representative events
- (iii) inferences are made from non-representative processes, which result in over-reliance on plausible interpretations.

This study made inferences from a representative informant and context.

Reflexivity/Clarifying Researcher's Bias/Epoche/Bracket. The starting point for any researcher is the expression of their worldview (Austin, 2014). Reflexivity is one of the ways researchers can ensure rigor and quality in their findings (Dodgson, 2019). Therefore, the researcher must be conscious of the preconceived ideas, biases, assumptions, beliefs they bring into the study that can affect the study's process (Austin, 2014; Berger, 2015, Leech & Onwuegbuzie, 2007b). Berger (2015) described it as maintaining a "balance between the personal and the universal" (p. 220). However, Austin (2014) advised that rather than seeking an unachievable goal of "objectivity" (p. 437), researchers should be open and transparent about their own subjectivities. Likewise, Bednall (2006) noted that the voices of subjectivity need to emerge genuinely in knowing what participants mean as they express their personal experiences through the data collected. Also, Fischer (2009) claimed that bracketing is not to gain objectivity but to acknowledge the researcher's engagement in advancing consensual but evolving understandings of the research phenomena and processes. Fischer (2009) pointed out the need for the researchers to describe and identify their background to open the readers to new understandings. Fischer (2009) specified the dual engagement of bracketing, which encourages reflection and reflexivity in the course of a study. The first is that researchers should constantly record and identify their assumptions about a topic and their interests in it. The purpose of this is to regularly check to see whether there were meanings the researchers were imposing on data (Austin, 2014; Fischer, 2009). A reflective journal was used to document these biases, values, interests, assumptions, and others (Nowell et al., 2017). Another way of ensuring the credibility of findings is data transferability. A

researcher achieves this by providing rich and thick data (Leech & Onwuegbuzie, 2007b), which I have provided in the study.

Data Transferability. Eriksson and Kovailanen (2008) upheld that saturation is used only when the purpose of the qualitative study is factual. To buttress this explanation, Eriksson and Kovailanen (2008) noted that the term is invaluable when the study is concerned with meanings and not making postulations. Since the aim of the study was focused on the former, the study provided rich data and thick descriptions to validate it.

Rich and Thick Description. One of the important ways to provide credibility for qualitative research is by accumulating a thick and rich description of the study, which is the same as comprehensive and complete data to expand the ability to find meaning. Researchers can provide these through accurate interview transcripts, detailed and descriptive note-taking while observing behaviors and specific events and activities (Leech & Onwuegbuzie, 2007b). Furthermore, White and Marsh (2006) believed that giving a credible description of data and observation patterns to build a rich fact in figures and reports is essential for validating a qualitative approach. Leech and Onwuegbuzie (2007) confirmed that a detailed and thick description of a study informs the reader about transferability. With such information, the reader can apply and transfer information to other contexts to determine replicability.

Step 12: Write the Research Report

I wrote the final implications and future research recommendations for this study based on step 12 of Leech and Onwuegbuzie's (2012) methodological framework. This report was based on taking a closer look at the significance of the study, the literature

review, and the theoretical framework that informed the discussion of the findings and the research questions guiding the study.

Final Implications

Videogaming is a noteworthy part of an individual's creative and cultural aspects, encompassing audio, visual, design, narrative, and art forms. Technology, a fast-growing aspect of human lives and an essential aspect of skills development, can be utilized to improve literacy levels amongst gamers (Zirawaga et al., 2017). With a projected increase in revenue development, the global market for videogaming is forecast to be worth \$256.97 billion by 2025, and the industry is predicted likely to reach \$295.63 billion in 2026 (Dobrilova, 2022); it is necessary to understand videogames implications on societal and individual levels (Engelstätter & Ward, 2016). Although literacies vary amongst learners, it is possible to reinforce it through videogames at stagnated time intervals during active and other learning hours. The key implications of this study can be understood based on my four critical findings: creativity and innovation, collaboration, critical strategic thinking, and social skills.

Implications: Collaboration

Videogames (complex software) play an important role in modifying learners' literary behaviors. The multimedia software can as well be adjusted to support learning with improved outcomes, especially during cooperative or collaborative settings. The current study illustrates that videogaming, including collaboration enhances a gamer's literacy levels. Similarly, collaborative videogames can be used to build social skills and motivation for gamers (Harrison, 2022). Collaboration supports innovation amongst gamers by guaranteeing that gamers cultivate these skills for community development.

This approach is possible due to present game principles and community help groups assisting in the cementing collaborations.

The participant in this study was elated by the idea of *Twine*. He described it as a coding program platform that has been helpful in the development of his team's indie game. Creating these digital platforms with the possibility of getting help or support from other gamers makes even collaboration stronger amongst players. Other researchers, including Nebel et al. (2017), indicated that collaboration helps modify the gamers' behavior and attitude towards problem-solving methods. The study experimented with interdependence levels amongst participants, highlighting its importance by exposing the participants to rebuild an 1894 Effi Briest novel house. These perceptions build onto past and current collaboration theories within videogames. Similarly, a constructive project highlighted by Costa et al. (2018) confirmed that literacy can be encouraged through the collaborative nature of videogame development. A collaborative approach strengthened by videogaming, when nurtured through the strengths and weaknesses of the gamers, can help level up players' literacy levels.

Implications: Creativity and Innovation

The connections through the game pages, texts, ability to customize, interact with objects, people, and store page cemented the participant's creativity and innovation. Notably, the participant was able to recall skills from the *Squid Games* that helped create one of his games. Videogaming, coupled with operational pedagogics, can help acquire innovative skills (Kingsley & Grabner-Hagen, 2015). Videogaming nurtures a participant's creativity when completing quests by offering an opportunity of creating personalized and unique content. Similarly, these videogames allow participants to learn

digital literacy skills and innovation skills by offering participants the ability to participate in different competing media (Checa-Romero, 2016). These processes support the publication and creation of new productions through the critical skills learned and shared among different gamers. Moreover, videogaming has enormous impacts, including developing and growing creativity among gamers. This implies that videogaming promotes digital literacy and computational innovations.

Implications: Social Skills

Individual engagement in videogames has been influential in developing the world's literacy levels. These engagement experiences have been helpful in the development of a connected world with the encouragement of global communities. González-González et al. (2014) highlighted that videogames have impacted hospitalized and isolated children with severe illnesses. Therefore, social skills in videogames help create a digital community where they can learn, get entertained, and share ideas even in their isolation rooms. Moreover, videogames are steadily becoming an integral part of cultural lives (Daniel & Garry, 2018). Therefore, they tend to provide essential insights into the modern and digital community cultures. In addition, the current literature implies that the possibilities of the video chat room, social chats, hangout spaces such as the hub enabled on the social group page, and support of many other gamers helped strengthen social interactions through show-offs of sprays, costumes, in-game chats, Crayta videogame streaming via YouTube, and others. These digital skills have subsequently developed into necessary traits for many digital communities from different communities and digital platforms, implying that positive communities could be developed through these social gaming groups.

Implications: Critical Strategic Thinking

Videogames challenge individuals' perceptions of learning, creativity, identity, and moral value. As evidenced by these findings and supported by the current literature, Caden exhibited critical strategic thinking in problem-solving through the advanced levels of extruding the vowels in any direction and creating a visual narrative of his game, the 2D platformer game. Caden further explored his editorial skills by rotating and adjusting an entity by using an entity editor which allowed him to create the script components for the door. As evidenced by the example of Caden, gamers have the capacity to develop and improve their digital literacy through the publication of created videogames e.g., *Cadenland* and *Cadenverse* live events. Schrier (2016) showed that male gamers exhibited different thought processes and ethical thinking skills than non-gamers indicating the importance for studying strategic critical thinking among gamers. Ethical thinking, a twenty-first-century critical component, can be supported by efficient designs of videogames. The high thinking capability displayed by this participant and supported by previous literature confirms that critical strategic thinking could be achieved from videogaming.

Recommendations

Although the goal in conducting this study was to focus on males' literacies through videogaming, I wondered what type of responses I would have received had my research included female players. Therefore, future research could call for an inclusion of females' responses. Given the feedback received in the Discord discussion boards, many females were irked to not be able to be included, this suggesting potential mass appeal of gaming among females and a need to study this demographic. The current study

highlights one respondent's videogaming experiences and literacy engagements through e-mails, voice chats, in-game text and interviews. Thus, the study analyses were based on the responses collected from the male participant recruited for this study. Future studies should broaden their response bases to expand research outcomes by assessing the different literacy experiences of several participants. Such studies would easily compare the social skills acquired, digital literacies, technological applications, and community communications developed among the participants. Although the research findings were generally in line with findings from the extant literature, the need for further future research on females' responses for comparison could be recommended.

In exploring the literacies found in videogaming, future studies could investigate the motivational role of videogames to learners. The present research evidence demonstrated the impact of videogames on four major literacy outcomes – creativity and innovation, critical strategic thinking, and social skills. However, the versatility and complexity of certain videogames widen the scope for more literacy outcomes. In particular, videogames can challenge and motivate players to persevere and attempt more complex learning tasks. According to Gee (2013) the educational dilemma in videogames is comparable to other educational environments, such as schools, where the content must be challenging yet exciting to the learners. Videogames can increasingly be used to test learners' motivational levels to conquer various intellectual hurdles. Eventually, learners gain valuable insights on creating and implementing new ways to learn in different educational settings.

Future research studies should also streamline their methodologies regarding the medium of delivery of responses. The accuracy and consistency of research data

significantly affected the study outcomes. Varied responses were noted in the data collected via different platforms for the current study. For example, responses via instant messaging on Discord and voice chats during a gaming session were longer and more elaborate than those received via e-mails. According to Jhala and Menon (2021), two-way communication in synchronous conversations allows for interpersonal relationships and extended discussions. This way, researchers can develop deeper meanings of the concepts of videogames and their impact on literacy levels. Thus, future research studies should consider synchronous models of primary data collection to foster the clarity of research responses.

Step 13: Re-evaluate Research Question(s)

At the end of the study, the research questions that informed my final analysis and interpretation are as follows:

1. How does a college-aged male engage in literacies practices through play and game creation on *Crayta* within the larger Stadia culture?
2. How does a college-aged male gamer layer his literacies and employ the four components of the feedback loop while playing *Crayta* within the larger Stadia culture?

In the previous section, I suggested some recommendations for including girls and a mix of both genders for future study. Therefore, it would be thrilling to explore the literacy engagements of both sexes to determine how the gender-based experiences would impact future findings. Hence the research questions could be modified to include the following:

1. How do males and females aged 18-30 engage in literacies through play and game creation on Crayta within the larger Stadia culture?
2. How do male and female gamers layer their literacies and employ the four feedback loop components while playing Crayta within the larger Stadia culture?

Conclusion

Some education stakeholders are unaware of the positive impact of videogaming on student learning (Jiow et al., 2018). Hence, they need to know that videogaming promotes literacy practices (Mahmoodi-Shahreabaki, 2019) and has the unique potential of teaching and learning compared to other media (Pleasant & Ritzhaupt, 2013; Zimmerman, 2013). Furthermore, these practices enable players to advance beyond their operational levels to engage in more critical practices (Granic et al., 2014). Moreover, for learners to be engaged in creating their rhythm of knowledge, content, teamwork, critical thinking, continuous problem solving, creativity, and social interactions are crucial aspects of learning through games (Pleasant & Ritzhaupt, 2013; Zirawaga et al., 2017). Shreds of evidence in this study showed that videogaming prompted the participant to embrace learning as a fluid and multi-directional process. As a result, he could combine independent and collaborative practices that were self-directed and based on his interests (Abrams, 2014; Abrams, 2017; Abrams & Gerber, 2021; Garcia, 2020b; Lucci et al., 2016) to create things he had prior knowledge of, imagined, or things he had never achieved before, (e.g., transferring the 2D platformer game from paper to digital).

A collaborative game creation and publishing platform, such as *Crayta* that allows players to explore unique worlds and create anything they can imagine, and a space

where peer learning and content creation are becoming more accessible and more social, offers learners like Caden more engaging forms of being creative with peers and can prompt a sense of responsibility for one's own and other's learning and development, boosting self-confidence and self-esteem through engaging in a community of learning and learners—for instance, Caden being able to access other players' creations and explore his editorial experience using the drone to assist in editing and creating their worlds, and molding his own unique universe.

In this ethnographic case study, I sought to understand a 26-year-old gamer's literacies on Crayta, a sub-culture within the larger Stadia videogaming platform. My son's love for videogames sparked my interest in this topic. Since then, different questions have been popping up in my head on videogaming and its relation to literacies. This study unveiled how the participant meaningfully engaged in diverse literacies by working independently and collaboratively with peers. The study offered fascinating and relevant findings for parents, educators, scholars, policymakers, stakeholders, and society to consider.

Summary

In this chapter, I presented the discussion of findings, implications, and recommendations for further research. The chapter also covered Onwuegbuzie et al. (2012) 's 10-13 process for qualitative research: (i) Step 10- Interpret data (ii) Step 11- Legitimate data (iii) Step 12- Write a qualitative research report, and (iv) Step 13- Re-evaluate research question(s).

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APPENDIX A

Qualtrics Survey

Welcome to the research study! We are interested in understanding males' videogaming literacies on Stadia. For this study, you will be presented with information relevant to male gaming literacies. Then, you will be asked to answer some questions to guide the study. Your responses will be kept completely confidential.

The study should take you less than 2 minutes to complete. Your participation in this research is voluntary and you have the right to withdraw at any point during the study.

The Principal Investigator of this study can be contacted at [REDACTED]

By clicking the button below, you acknowledge:

Your participation in the study is voluntary. You are 18 years of age. You are aware that you may choose to terminate your participation at any time for any reason.

- ☐ I consent, begin the study
- ☐ I do not consent, I do not wish to participate

What age group are you?

- ☐ 18-21
- ☐ 22-25
- ☐ 26-30

What kind of observation would you prefer?

- ☐ Direct Observation
- ☐ Indirect Observation
- ☐ Either

Please, provide the email address to contact you

[Restart Survey](#) [Place Bookmark](#)

Mobile view on ☐ Tools ▼

Welcome to the research study! We are interested in understanding males' videogaming literacies on Stadia. For this study, you will be presented with information relevant to male gaming literacies. Then, you will be asked to answer some questions to guide the study. Your responses will be kept completely confidential.

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By clicking the button below, you acknowledge:

- Your participation in the study is voluntary.
- You are 18 years of age.
- You are aware that you may choose to terminate your participation at any time for any reason.


literacies. Then, you will be asked to answer some questions to guide the study. Your responses will be kept completely confidential.

The study should take you less than 2 minutes to complete. Your participation in this research is voluntary and you have the right to withdraw at any point during the study. The Principal Investigator of this study can be contacted at oad006@shsu.edu

By clicking the button below, you acknowledge:

- Your participation in the study is voluntary.

Type here to search

32%56°F9:37 AM Thursday 11/18/2021

APPENDIX B

Interview Protocol

I want to thank you once again for willing to talk to me about your experience on Crayta.

I will be asking you a few questions about your experiences and what you think about the game.

Background Questions

Tell me about your background.

Experience and Behavior

Tell me about your experience playing and creating games on Crayta.

What kinds of games do you mainly play on Crayta?

Can you tell me more about your experience when creating?

How long have you been playing Crayta?

How have you created the game.....? on Crayta? What resources/materials did you use?

How has playing on Crayta impacted you educationally or carrier-wise?

Opinions and Values

Can you tell me a bit about how you decided to join the Crayta community?

What makes you identify with the Crayta community?

What kind of people play on Crayta?

What is your perception of Crayta?

Feelings and Emotions

The game you created on Crayta; is one of the most played on Crayta. What do you think about it?

What do you like most about Crayta?

What do you dislike most about Crayta?

Knowledge Questions

When creating a game on Crayta, what are the most valuable resources that you use?

(Books, social media, fan fiction, blogs, and others).

How much time do you spend a week playing Crayta?

Tell me, what were your thoughts when you created the game,?

What other Stadia/Crayta activities do you do? (Fanfiction, blogs, writing stories, and others.)

Sensory Questions

What do you watch out for, visually when creating games on Crayta?

APPENDIX C

Observation Protocol

Length of Activity:	
Descriptive Notes	Reflexive Notes
Time:	
Place:	
Participant(s):	
What are the experiences of Crayta players as they play/create?	
How are texts being used?	
What kind of literacies are emerging?	
Any layered literacies observable?	
What artifacts are being created/used?	
Reflexive Notes:	

APPENDIX D

Recruitment Flyer



Participants Invited!
Looking for volunteers to participate in a study exploring videogaming literacies among gamers.

Who?
Males aged 18 - 30 yrs old.

Where?
Crayta on Stadia.

What?
Participation will include **interviews** (to be sent via an email), **observation** (participants will have a choice of either being observed directly or sending their recorded game plays to the researcher for observation), and **artifacts**, i.e., screenshots, static/moving images, etc.

Dates & times for participation are flexible. Observation for the study would involve 6 - 10 hours of observation per participant spread across three months that will not last more than 2 hours per observation per participant.

Interested? Please scan the QR Code



APPENDIX E

Initial IRB Approval Letter

TO: Omobolaji David Ojumu Hannah Gerber

FROM: SHSU IRB

PROJECT TITLE: Young Male Videogamers' Literacies on Crayta Within the Stadia Culture

PROTOCOL #: IRB-2021-245

SUBMISSION TYPE: Initial

ACTION: Approved

DECISION DATE: October 11, 2021

ADMINISTRATIVE CHECK-IN DATE: October 11, 2022

EXPEDITED REVIEW CATEGORY: 6. Collection of data from voice, video, digital, or image recordings made for research purposes.

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

OPPORTUNITY TO PROVIDE FEEDBACK: To access the survey, click **here**. It only takes 10 minutes of your time and is voluntary. The results will be used internally to make improvements to the IRB application and/or process. Thank you for your time.

Greetings,

The above-referenced submission has been reviewed by the IRB and it has been Approved. This study received expedited review, and the IRB determined that a renewal submission is needed, but only in the form of an administrative check-in submission. You will receive an email notification on the anniversary of this study approval, which will be on October 11, 2022. This study approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Since Cayuse IRB does not currently possess the ability to provide a "stamp of approval" on any recruitment or consent documentation, it is the strong recommendation of this office to please include the following approval language in the footer of those recruitment and consent documents: IRB-2021-245/October 11, 2021/October 11, 2022.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Modifications: Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please submit a Modification Submission through Cayuse IRB for this procedure.

Incidents: All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office.

Please submit an Incident Submission through Cayuse IRB for this procedure. All Department of Health and Human Services and sponsor reporting requirements should also be followed.

Study Administrative Check-In: Based on the risks, this project does require a renewal in the form of an Administrative Check-In procedure. This means you are required to administratively check in with the IRB on an annual basis. October 11, 2022 is the anniversary of the review of your protocol. **To get started with your next Administrative Check-In procedure, you will submit a Renewal Submission through Cayuse IRB. A reminder email will be sent to you on the anniversary of your most recent approval of *Young Male Videogamers' Literacies on Crayta Within the Stadia Culture*.**

Please note that all research records should be retained for a minimum of three years after the completion of the project. If you have any questions, please contact the Sharla Miles at 936-294-4875 or irb@shsu.edu. Please include your protocol number in all correspondence with this committee.

Sincerely,

Chase Young, Ph.D.

Chair, IRB

Hannah R. Gerber, Ph.D.

Co-Chair, IRB

APPENDIX F**IRB Modification Approval**

TO: Omobolaji David Ojumu Hannah Gerber

FROM: SHSU IRB

PROJECT TITLE: Young Male Videogamers' Literacies on Crayta Within the Stadia Culture

PROTOCOL #: IRB-2021-245

SUBMISSION TYPE: Modification

ACTION: Approved

DECISION DATE: November 8, 2021

ADMINISTRATIVE CHECK-IN DATE: October 11, 2022

EXPEDITED REVIEW CATEGORY: 6. Collection of data from voice, video, digital, or image recordings made for research purposes.

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

OPPORTUNITY TO PROVIDE FEEDBACK: To access the survey, click [here](#). It only takes 10 minutes of your time and is voluntary. The results will be used internally to make improvements to the IRB application and/or process. Thank you for your time.

Greetings,

The above-referenced submission has been reviewed by the IRB and it has been Approved. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form.

Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

The following is a reminder of the changes that the IRB has approved with this

Modification:

Consent document: I am requesting the following change(s) to the study for these listed sections:

- 1. Section 3, item A (a)- Procedure.**
- 2. Section 3, item A (1) - Procedure in detail.**
- 3. Section 4, item A (2) - Sample size.**
- 4. Section 6, item C - Consent form.**

Modifications: Please note that any revision to previously approved materials must be approved by this committee prior to initiation. **Please submit a Modification**

Submission through Cayuse IRB for this procedure.

Incidents: All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office.

Please submit an Incident Submission through Cayuse IRB for this procedure. All Department of Health and Human Services and sponsor reporting requirements should also be followed.

Closures: When you have completed the project, a **Closure Submission must be submitted through Cayuse IRB in order to close the project file.**

Please note that all research records should be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact the Sharla Miles at 936-294-4875 or irb@shsu.edu. Please include your protocol number in all correspondence with this committee.

Sincerely,

SHSU Institutional Review Board

VITA

Education

Doctor of Education in Literacy at Sam Houston State University, December 2017-present.

Dissertation title: An Ethnographic Case Study Exploring a Male's Videogaming Literacies on *Crayta* Within the Larger *Stadia* Culture.

Master of Arts in English, University of Lagos

Thesis title: Persuasive Discourse Analysis in Selected Television Adverts

Bachelor of Arts in English, University of Ado-Ekiti

Thesis title: Themes & Techniques in Selected Jane Austen's Novels

Professional Certificates

- TExES ESL Supplemental exam (ongoing)
- English and Language Arts/Reading exam (ongoing)
- Pan – Atlantic University (Lagos Business School - Creative Writing) - 2013
- Certified Customer Service Associate (2009 - Present)

Professional Experience

2019- current Sam Houston State University, Department of Educational Leadership

Graduate Assistant

Responsibilities:

- Provided various administrative support to faculty members, such as conducting degree checks and interpreting students' degree works.
- Directed students to the program coordinator, and as needed, for additional advising and/or program orientations, to ensure students' success.
- Administered and managed departmental approvals for Higher Education Leadership doctoral students using the university's Banner Administrative Applications.

- Generated, created, and archived student files and information using the Microsoft Teams application.
- Advised student (current and prospective) inquiries and enrolled students in classes.
- Created the Assessment of Culture survey and other surveys for the Higher Education Leadership department using Qualtrics and distributed same to students and stakeholders.
- Collaborated with the Higher Education Leadership Coordinator on the assessment of culture survey.
- Worked individually and collaborated with peers to develop the annual report for the educational leadership department.
- Drafted, edited, and communicated weekly messages to all Higher Educational Leadership students, staff, and faculty members via the Blackboard.
- Communicated departmental news through the department's social media accounts- LinkedIn and Twitter on Hootsuite.
- Producing the new students' welcome reception programs using the Microsoft Publisher.
- Hosted and participated in virtual and physical interviews to recruit new cohorts into the higher educational leadership doctoral program.
- Established meaningful relationships with students, staff, and faculty members and worked collectively with all necessary publics on campus to foster student achievements.
- Provided support to the program director and secretary to the dean to host new students' orientations/receptions.
- Monitored student enrollment, completion, and reconciled student accounts accordingly.
- Other duties as assigned.

2017- 2018 Dominion International Center, Texas

Music Director

Responsibilities:

- Planned and organized weekly rehearsals of a volunteer choir of working professionals.
- Recruited new members, trained, and prepared all music, involving 40- choir members.
- Coordinated worship leaders on song selections and arrangements.
- Delegated songs and responsibilities to members for each service.

2016-2016 Business Day Media

Associate Editor

Responsibilities:

- Led in promoting the company's product through social media and reaching over 1,000 prospective customers.
- Collaborated with team leadership on key editing and production decisions.
- Gathered and verified information regarding stories through interviews, observations, and research.
- Completed editorial project as assigned for publication.

2013-2013 SI-UK Educational Council

Relationship Manager/Educational Consultant/Social Media Executive

Responsibilities:

- Acted as a liaison between the council and students.
- Counselling students and answering students' enquiries about studying abroad.
- Communicated with current and prospective students via diverse social networks, such as Twitter, Facebook, LinkedIn, and community forums.
- Managed, edited and proofread all online contents.
- Developed and maintained contents for website.

2013-2015 Women of Essence (NGO)

Executive Assistant

Responsibilities:

- Communicated with other administrative team members, human resources and the finance department on special projects and events.
- Investigated issues and problems and drafted responses to urgent requests.
- Served as a professional rep of the CEO to executive clients, investors, and board members
- Handled all media and public relations inquiries.
- Drafted and edited correspondence, articles, reports, and presentations; transcribed meeting notes, ensuring 100% accurate information.

2012-2012 Spur Magazine

Editor

Responsibilities:

- Completed editorial project as assigned for publication.

2006-2009 Odua Telecoms

Communication Officer

Responsibilities:

- Managed the company's corporate events.
- Co-ordinated internal communications, including production and management of print and electronic newsletters.
- Coordinated work of 15 reporters and assigned topics to freelancers and other editors.
- Edited and proofread all contents before final production.

2003- 2006 Odua Telecoms

Customer Care Officer

Responsibilities:

- Followed up with existing customers and prospective clients, securing 25% in new accounts.
- Researched, analyzed and communicated enough information regarding the company's services, policies and activities to specific market segments, and tailoring the products to meet customer's needs.
- Answered incoming calls in a fast-paced environment
- Managed and answered all customers' queries & inquiries.

Presentation

Cameron, S., Durham, P., Dickens, L., Edgar, M., Gary, A., James, K., David, O.O.,

Panozzo, M., Winard, A. (2019). *Practices of literacy through a historical lens:*

An ethnographic observation by doctoral students of practical application of

course content of LITC history of literacy. Paper presented at the Building

Bridges with and for Literacy (ALER) Conference, Corpus-Christi, TX.

Invited Presentation

David, O.O. (2019). *Teaching abroad and loving it*. Paper presented at the Universality Global Education Conference (UGEC), Huntsville, TX.