

AUTISM AND ONLINE GAMING

ATHABASCA UNIVERSITY

HOW ADULTS WITH HIGH FUNCTIONING AUTISM EXPERIENCE AND  
UNDERSTAND LEARNING IN A MMO GAME

BY

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**Approval of Thesis**

The undersigned certify that they have read the thesis entitled

How Adults With High Functioning Autism Experience And Understand Learning  
In A MMO Game

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### **Abstract**

This qualitative phenomenological study investigated a gap in the literature on adults with high functioning autism (HFA) and whether, or how, communication skills are strengthened or learned by playing MMORPG and MMO games. These games require players to communicate through: team playing, collaborating, trading, strategizing, socializing, competition, overcoming obstacles, and building empires. In the gaming culture, however, when players do not communicate effectively while playing, they are often ignored or excluded from group play. Through multiple perspectives from adults with HFA, four key themes emerged: transfer of information focused on the why, how, and who HFA gamers interacted with; description of game players involved real players and non-player characters; dislikes involved the gaming industry and other gamers; and self-barriers demonstrated self-awareness of the participants' own deficits due to their autism. Overall findings report that adults with HFA who played MMORPGs and MMO games strengthened their communication skills.

*Keywords:* autism, high functioning autism, adults with HFA, online gaming, MMO, learning, communication

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## **Chapter 1. Introduction**

There is no question that the world is rapidly changing as a result of the continual evolvement of technology, and as technologies change, the fundamental issues about how people learn remain a constant challenge (Paas, 2008). Learning technologies often promote interaction with, not isolation from, learning by doing as a way of knowledge transmission (Salomon, 2016). Online technology in the form of games, however, goes one step further and can offer a wide array of learning opportunities for learners of all abilities and disabilities.

In virtual learning, online games can be considered to be pushing the envelope in technology and player engagement (Zhang, Song, Liu, Tang, & Chen, 2017). Online games encourage communication and have the potential to become a valuable educational tool through interactive and safe learning environments, as “when gamers band together... they are likely building skills that will come in handy in the real world” (Hulick, 2017, p. 1). Online games are no longer used only for entertainment; they are used for “serious purposes such as education, business, and healthcare” (Aleem, Capretz, & Ahmed, 2016).

A specific group of online game players consists of individuals with autism spectrum disorder (ASD) who commonly enjoy computers, and by using online technology they are often able to interact with the digital world (Tanner, Dixon, & Verenikina, 2010). To further understand the role of online gaming as a means of learning for this community, a more clinical definition is needed.

### **What is ASD?**

ASD is a neuro-developmental condition that manifests early in life and consists of a number of traits that are described in terms of deficits. ASD is commonly



characterized by severe impairment in reciprocal social interactions and communication skills and the presence of restricted, stereotypical behaviours” (Baxter et al., 2015). However, ASD is a spectrum disorder, meaning that deficits manifest from very severe to very mild.

Impaired ability to effectively communicate is one of the most pronounced of these deficits and can be defined as “responding inappropriately in conversations, misreading nonverbal interactions, or having difficulty building friendships appropriate to their age” (American Psychiatric Association, 2013, p. 1). According to the DSM-5 (2013) communication difficulties may also include impairments in the development and use of language, speech, social communication, and social interaction. Technology offers potential to help people in the spectrum develop communication, motivation, visual modeling, and social networking skills (Aresti-Bartolome & Garcia-Zapirain, 2014).

### **Computer Game Technology**

To provide a bit of background about computer game technology, it is essential to understand that while computer games and online games may be enjoyable to play, they do have specific differences. When describing computer games and online games there is a tendency to believe that the two terms are interchangeable; however, they are instead a description of the evolution of gaming, from basic console games to advanced multiplayer interactive games (Chikhani, 2015). To describe computer games, they contain: “automation and complexity - they can uphold and calculate game rules on their own... [which] also lets them keep pace” (Juul, 2004). A computer game allows the player some control over its environment as the player can only interact with the game and its components and does not necessarily need an Internet connection. Computer

games are a useful option for individuals who enjoy knowing a game's expectations along with its rules and challenges upfront. Online games, on the other hand, may be considered a technological advancement and natural progression of computer games (Juul, 2004).

### **Virtual Learning and Online Gaming**

The idea of virtual learning is proving to be effective as a learning environment to help individuals with ASD overcome specific difficulties by spending time in a virtual reality, a virtual world, that is created to represent the natural world in a personalized scenario (Rhodes, 2017). As research continues and technology advances, online gaming is showing promise as a learning approach for people with ASD (Zakari, Ma, & Simmons, 2014). Positive results such as increased performance of responding, greeting, and improved social competence have been found when using virtual reality as a learning tool (Ke & Im, 2013).

An online game encourages a flexible collaboration approach to learning new skills by allowing the player to control their own choices within their game. When an individual is given options, empowerment can follow. If a person with ASD enjoys their online game experience, it is possible he will become further engaged and want to continue to play, which in turn, can potentially improve his communication skills (Mazurek et al., 2015; Parsons & Mitchell, 2002).

Online games may be played for enjoyment, but online games have become a multiplayer gaming community where real-time role playing is an essential game feature. Developing online games to be multiplayer and to cater to different kinds of play styles are effective design elements for the gaming industry (Sailer, Hense, Mayr, & Mandl,

2017). With the use of the Internet, players located worldwide can participate in the same game and construct a game that can be different for every player. Online gaming is engaging and allows the player to interact with whatever or whomever they encounter. Multiplayer online games allow players to play independently, yet still support and encourage communication and social relationships. Learning collaboration skills through an online game may potentially help with social interaction both inside and outside the game.

### **MMORPG**

To play a massive multiplayer online role-playing game, (MMORPG), a game player is required to have specific knowledge or online game abilities that require effective communication skills. First, it is important for gamers to be familiar with the English language and game terminology (Koptur, 2016). Popular online games are commonly written in English and to be able to functionally play “it [is] necessary to learn English for specific context...to do well in the game by using the shared language of the context” (p. 92). Secondly, a gamer needs to see learning as fun. A MMORPG is most often about overcoming obstacles and the online game provides the tools, but the gamer needs to learn how to accomplish these tasks (Brown & Thomas, 2008). This may include cooperation and teamwork, present and future problem solving, and adapting to new and changing environments and content (Farber, 2020). Thirdly, game quests are often designed to be too difficult for the single player so players need to find help from other players within the game (Ducheneaut & Moore, 2005). MMORPGs are multiplayer games so interaction with other gamers within the game is important. Fourthly, being a good teammate will help with group cohesion (Ducheneaut & Moore, 2005). The

stronger the team, the greater the game success. Without gamer friendliness, respect, and patience, other gamers will avoid or refuse to interact with the noncompliant gamer. Finally, gamers need to be able to accomplish visual tasks (Brown University, 2015). Online games require cognitive flexibility such as the ability to complete dual tasks, planning, visual and verbal reasoning, and making decisions about moving objects quickly and accurately (Chen & Hsieh, 2018).

As these required communication skills have been established to be challenging to individuals with ASD, to succeed in a MMORPG requires the player to develop these skills.

### **Statement of the Problem**

Research is about discovery and this research was about discovering what high functioning adults with autism have to say about online gaming and their experiences with learning communication skills. There are few online games, if any, that are designed specifically for people in the autism spectrum with the ability to promote communication skills and social interaction with other players. There are even fewer games that have been informed by input from people with ASD. While communication challenges are present, individuals with HFA are considered to have communication skills that are less of a deficit, so they may be better able to articulate their thoughts and feelings about games they play. All in all, game designers have been limited in their scope of knowledge when creating online games that are played by people in the autism spectrum (Shi, & Shih, 2015).

Current research tends to be based on the individual deficits in accordance to the person's own environment of which data commonly relies on second-hand accounts

(DePape & Lindsay, 2015). It is not uncommon for people close to an individual with ASD to speak for their loved one so the information given may be different from what the person with ASD would say or believe. Current literature is, therefore, dominated with research focussed on the second-hand reports of people with ASD and does not recount the unique experiences in their own words.

There are few studies that investigate online gaming and high functioning adults with ASD by interviewing the participants and using their own words to describe their experiences (Brown-Turner, 2017; Mazurek et al., 2015). Therefore, in order to expand on the existing data, this study was defined by the participants own descriptions, and how their communication is enhanced or improved by playing an online game.

This research study gave adults with HFA an unfiltered voice to what they would like in a massive multiplayer online game (MMO) as well as how a MMO game can be utilized to become a fundamental social interaction learning tool. Through first-hand accounts, recommendations for innovative options can be learned for the facilitation and learning of communication skills. Involvement with a MMO or MMORPG, as a learning tool, has the potential to strengthen the communication skills of players with ASD, including those who are high functioning.

### **Purpose of Study**

The purpose of this descriptive phenomenological study was to explore the lived experiences of learning communication skills in online gaming for adults with HFA

### **Research Questions**

The following research questions have been developed to address the purpose of this study:

### Main Question

- How do people with HFA describe their experience of learning communication skills with the use of MMO online games?

### Sub-questions

- What are the features of the MMO online games that people with HFA believe to positively influence communication skill building?
- What are the features of the MMO online games that people with HFA believe to negatively influence communication skill building?

### Significance of the Study

The data obtained from this study with individuals with HFA has the potential to inform the development of online games for people with ASD by providing and supporting opportunities for communication. Through the participants' experiences, a greater understanding of their communication wants and needs were explored. These findings have the potential to further help people with ASD to have a greater ability to learn communication skills through online games. Future online games can be developed with these research findings as the data that was directly obtained from people with HFA revealed what can be beneficial, or not beneficial, for communication skill building. Even though there are many learning-oriented online games on the market, this study has great potential to help with the design of future online games specifically for people with ASD. Many people with ASD participate in the online gaming market, so to focus on this consumer demographic may be of benefit to game designers and companies.

Additionally, the results from this study can help fill in the gaps in the literature by increasing the understanding of communication interactions that are important

components of online gaming. With the diagnosis of autism on the increase as well as its range and severity of symptoms, the greater demand for different learning tools justifies the need for more effective communication teaching approaches for people with ASD. The findings of this study give people with ASD a voice to the features of an online game they like and dislike. Thus, in answering the main research question along with the sub-questions in the participants' own words, this study contains authentic data and not opinions from caregivers.

### **Validity**

Qualitative research is primarily based on subjective experience which makes it more difficult to establish validity. Therefore, qualitative research brings attention to its credibility, transferability, and authenticity. Credibility refers to establishing the research results as believable. It asks the researcher to ensure the study's findings connect with reality so there will be truth in its findings (Anney, 2014). Validation is an attempt to obtain accuracy in the collection of data as best described by the researcher and the participants (Creswell, 2013). Overall, credibility allows the research results to be transferable to other situations. It is established by using thick and copious descriptions drawn from the original data and ensuring the research findings demonstrate plausible representations of the participants' original views (Korstjens & Moser, 2018).

Authenticity, on the other hand, is associated with the quality and truthfulness of the data and the data collection procedures (Sargeant, 2012). It can be described as being self-aware and expressing what is honestly thought and believed from the person's own experience. It can be further described as "offering a fair, honest, and balanced account

of social life from the viewpoint of the people who live it every day” (Neuman, 2011, p. 214).

Qualitative studies, including phenomenological interpretation, are subject to underlying assumptions and individual perceptions. Therefore, to help strengthen this study, strategies of rigour were utilized with systematic research design, data collection, interpretation and analysis. In addition to interviews as a source of data, if possible, observations were recorded in field notes that included comments on participants’ facial expressions, behaviours and other non-verbal cues (Neuman, 2011). Triangulating both data collection procedures provided rich, thick data (Creswell & Miller, 2000) and helped ground the research in the participants’ lived experience (Sutton & Austin, 2015).

As stated by Creswell and Miller (2000) “reality is socially constructed and it is what the participants perceive it to be” (p. 125). Therefore, since researcher bias is an inevitable part of qualitatively studying people, this researcher engaged in reflexive self-examination to understand the research questions and interview experience in an attempt to be continually aware of the difference between the researcher’s own perspectives from those of the study participants. Reflexive self-reflection was important to ensure that the participant’s voice was distinguishable from the researcher’s voice. All interviews were recorded, auditory if conducted by phone, and video and auditory if conducted by Skype, for accurate data collection and transcription. (Prior to any recording, approval was given to the researcher.) Member checking had also ensured that the data collected conveyed what the participant intended.

### **Definition of Terms**



- *Autism Spectrum Disorder (ASD)* as described in the fifth edition of the Diagnostic Statistical Manual of Mental Disorders (DSM-5) is: A. Persistent deficits in social communication and social interaction across multiple contexts; B. Restricted, repetitive patterns of behavior, interests, or activities; C. Symptoms must be present in the early development; D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning; and E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay (2013, p. 50-51).
- *Avatar* is a figure chosen to represent a person in a video game
- *Disability* is a reference to “the interaction between persons with impairments and attitudinal and environmental barriers that hinder full and effective participation in society on an equal basis with others” (United Nations, 2008, p. 1).
- *Echolalia* is a type of communication and can be described as the repeating of words.
- *Esports* describes online sport competitions.
- “*HFA*” is an abbreviation for high functioning autism.
- *Learning* is “a process that leads to change, which occurs as a result of experience and increases the potential for improved performance and future learning (Ambrose et al., 2010, p. 3)
- *Lived Experience* is “experience-as-we-live-through-it in our actions, relations and situations” (Van Manen, 2007, p. 16). It is pre-reflective as it is an experience as a person is in it and not yet making sense of it.

- *Loot Boxes* are virtual consumable random awards that are found in modern computer games. Loot Boxes represent a treasure such as a tool or costume that will be of benefit within the storyline of a game; however, a player must purchase a key, also known as a microtransaction, to open the box to access its contents. Loot Boxes are included in games that are free to play, as opposed to being a monthly subscription.
- “*MMO*” is an abbreviation for massively multiplayer online game.
- “*MMORPG*” is an abbreviation for massively multiplayer online role playing game.
- *Online Games* are digital games that require an internet connection in order for them to be played.
- *Platform* for an online game is the digital virtual environment the game is programed in. It can be thought as the bare bones of an online game.

### **Limitations**

Limitations are the aspects of the study that cannot be controlled by the researcher and have the potential to restrict the study (Creswell, 2014). Although all efforts have been made to reduce any probable methodological characteristics which could influence the findings and challenge the researcher’s interpretations, some limitations were still present in this study. Also, while a descriptive phenomenological approach can be a powerful methodology for inquiry as it can yield rich descriptions of personal experiences, it too has inherent limitations. It is easy for a researcher to use their own subjectivity when analyzing the qualitative data so it is of prime importance for the researcher to be aware of their personal lens. For a complete focus on descriptive

phenomenology a researcher therefore needs to suspend his own attitudes and beliefs in order to approach the research and “the participants’ experience of the phenomenon [to] identify the essence of the phenomenon” (Neubauer et al., 2019, p. 93).

This study focused on the description of people’s personal experiences. Although this study’s participants had been open and willing to share their online experiences, these participants were considered to have high-functioning autism which, in itself, can still carry specific difficulties when participating in a research study. This was a study about learning communication skills and there were some articulation difficulties and participants sometimes found it difficult to fully describe their thoughts and feelings. Therefore, in addition to verbal communication, alternative visual cues such as gestures, facial expressions, body posture and behaviours were used and included in the data. Another limitation for this research was to have access to enough high-functioning people with ASD. However, recruiting participants occurred through various autism agencies throughout Canada so this issue was easily resolved. Lastly, game learning times varied for each of the participants. Although learning times were different for each individual, each video game offered a tutorial at the beginning of game play which was able to be accessed and reviewed whenever needed.

### **Delimitations**

Delimitations describe how the researcher will narrow the scope of their research (Nenty, 2009). These features are the controllable characteristics within the study. Delimitations included chosen aspects of the study related to time, location and sample selection. The delimitations of this study were related to the research design and its sample selection of which there were three main features. First, this study reflected the

narrow demographics of the population. This research population, individuals with ASD, was then further constricted as the participants were all high functioning individuals with ASD which means that they could articulate their thoughts and feelings clearly, but still experienced difficulties common to individuals with ASD. Secondly, the participants needed to already have basic computer skills as learning how to use a computer was not to be included in this study. Thirdly, the participant needed to have access to a computer that was conducive to participating in an online game. Lastly, it was also possible that not all participants could effectively articulate their experiences due to the nature of their disability so in addition to verbal communication, alternative visual cues such as gestures, facial expressions, body posture and behaviours were used and included in the data.

### **Conclusion**

This introduction gave a comprehensive overview of the basis of this phenomenological research. Individuals in the autism spectrum face a variety of challenges, of which this proposal focused on communication. The research gave people with HFA a voice as they described their experiences throughout the study process. Online gaming, as a communication learning tool for individuals with ASD, was explored which, in turn, has the potential to improve communication skills as well as provide pertinent information for future online game development directed specifically for the autism population.

## Chapter 2. Review of Literature

### Introduction

This chapter explores literature about MMO online gaming with the gamer who has HFA on autism. It follows the natural sequence of how this qualitative research study came to be while still providing relevant background information for this research.

Several diverse areas of literature relate to this research: (1) inspiration for this study; (2) the drive for technology and learning; (3) state of knowledge; (4) online learning for people with ASD; (5) online gaming and ASD; (6) online game development; and (7) summary of the literature. The literature in this chapter is used as a foundation for this study to ensure this research is built upon previous studies.

### Inspiration for this Study

The idea of this research began from reading the article, *Social skills training for adolescents with autism spectrum disorder using Facebook (Project Rex Connect): A survey study* (2017). It represented a powerful idea of using a common social networking site as a didactic tool for people in the autism spectrum. The article examined and evaluated the potential of how social media can be used as an online teaching method for individuals with ASD. This pilot study acknowledged that individuals with ASD frequently use electronic media, and therefore by linking social media and skill learning a potential new viable educational platform could be developed. More specifically, this study investigated the feasibility of using Facebook as an online social network for the purpose of helping autistic people with their specific impairments by teaching appropriate social etiquette and communication skills.

There was, however, an unexpected conclusion revealed from the analysis of this study as it stated there was “no statistical difference in measurable outcomes” (Gwynette et al., 2017, p. 11), and it further disclosed that Facebook usage had no impact on social skills training. The impact of this article came from the authors’ suggestions on how to improve or alter their presented study to better enhance the lives of people with ASD. The researchers suggested a future study should include “a gaming component of the online experience” (Gwynette et al., 2017, p. 15). Overall, the evidence from this study suggested people with ASD frequently visit websites related to gaming instead of social media websites and therefore a valuable future research topic should include online gaming instead of Facebook as a way of helping people with autism interact with others (Gwynette et al., 2017).

### **Terminology and Labels.**

Before proceeding with this exploration into the literature, terminology and concerns about labels should be addressed.

All individuals with autism can share the core features as described in the DSM-5, but in varying degrees (American Psychiatric Association, 2013). By using the term ‘spectrum’ the single diagnostic label allows for diversity within autism (American Psychiatric Association, 2013). Autism research, however, is commonly identified by additional terms such as ASD, autistic, Asperger Syndrome, high-functioning autism (HFA), aspie, on the autism spectrum, has autism, autism spectrum condition, or autistic person (Kenny et al., 2015; McConachie et al., 2018; Minkyong, Kim, & Yim, 2015; Vicker, 2009).

Within the autism terminology there are labels such as ‘high functioning’ or ‘low functioning’ that are not diagnostic terms and are only descriptions of how people with autism experience everyday challenges (University of Western Australia, 2019).

Although not highly researched, there is a growing consensus in the autism community that support the term ‘high functioning’ as offensive and should be permanently abandoned (Green, 2020). It has been said that using labels are distractive, does not accurately portray autism, can be misleading, and may create harmful expectations (Kaylene, 2020; Pacton, 2020; University of Western Australia, 2019). However, whatever term a researcher or practitioner chooses to use when describing an individual with autism, it is imperative “to ensure there is a clear understanding of the needs and preferences of the individuals themselves ... and their families” (Kenny et al, 2015, p. 19).

### **What is Autism, Really?**

What is autism and how can we understand the obstacles it presents? The Center for Disease Control and Prevention provides extensive information about ASD. First, there is no cure for autism as autism is not a disease. ASD is a developmental disability (CDC, 2020). Although a child’s development can improve with early intervention, the disability will continue throughout the person’s lifetime (CDC, 2020). Second, individuals with ASD often struggle to communicate with others, have challenges with social activities as well as difficulties in community engagement. Repetitive behaviours, anxiety, and challenges with spoken language are also considered to be core difficulties associated with ASD. Third, autism is commonly described as a spectrum disorder due to its wide range in severity of characteristic symptoms, from very high functioning to very low functioning. For a person on the high functioning end of the spectrum, although an

unofficial medical term, the core symptoms are mild, whereas for people with more severe symptoms, their challenges interfere with day-to-day activities (Ung et al., 2014).

Although “there is no medical test, like a blood test or electroencephalogram, used to diagnose” (CDC, 2020; 2019) the degree of autism a person may have, a person with high functioning autism is considered to have subtle cognitive dysfunction with a deficit in social understanding (Livingston, Colvert, Bolton, & Happe, 2019). However, diagnostic and screening tools that are designed to assess a child’s or adult’s atypical behaviours and atypical developmental symptoms are now readily available (CDC, 2020; 2020; 2019).

Further, even though adults on the higher end of the autism spectrum may be able to function in society, it does not necessarily mean they are high functioning *in* society. Autism is not a unitary disability and the variation of symptoms fall on a continuum scale as demonstrated on ASD screening tools. Characteristics are not the same for all people with ASD, although people with high functioning autism (HFA) are often referred to as being on the milder end of the spectrum. However, it is generally common for high functioning autistic adults to have difficulties with social interaction, inability to form meaningful friendships, and to use less emotion in their speech (Gantman, Kapp, Orenski, & Laugeson, 2011). On the higher end of the autism spectrum, an individual has the ability to speak, to verbally articulate their thoughts, to read, and to accomplish basic life skills. Even though every individual with ASD can have different deficits in varying degrees, their challenges remain a constant reminder that interaction and communication with others are important experiences needed in everyday life. Consequently, autism is a



label that can be interpreted in many ways. It is “one condition that manifests in many different ways with some common features” (Julia, 2017, para. 5).

### **Communication Skill-building**

The amount of professional literature pertaining to autism spectrum is staggering and in the last decade the amount pertaining to autism spectrum disorders has increased substantially (CDC, 2020; National Autism Spectrum Disorder Surveillance System (NASS, 2018). Autism is commonly identified by using the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) from the American Psychiatric Association (APA). In the current (2013) DSM-5 version, all autism-related conditions are under the one term of autism spectrum disorder (ASD).

Although researchers disagree about whether autism spectrum disorder is on the increase (Government of Canada, 2018; Wright, 2017) or holding steady or closing (CDC, 2020), the data is being monitored constantly, regardless, “[e]ach person with ASD is unique and will have different symptoms, deficits and abilities” (Ofner et al., 2018, p. 10). With such a wide range of disabilities and impairments in language, communication skills, social interactions, learning for people with ASD also requires an array of intervention and learning techniques to support learning of everyday life skills (Ofner et al., 2018; White, Keonig, & Schahill, 2007). Augmentative and alternative communication systems are also explored as a way to address communication issues and this includes the picture exchange communication system (Ganz & Simpson, 2004). As a way of theorizing advancement in communication processes, Ganz and Simpson (2004) use words and pictures to discriminate and develop sentences and the complexities of grammar. Research has also shown that once pictures are utilized for communicative

purposes, it may be possible to advance communication further by using additional formats such as computers and virtual learning (Clyde & Delohery, 2005; Thamarana, 2016).

As people with ASD grow older, they often become more self-aware of their social disability, and hence they may become more receptive to social support interaction (Tantam, 2003). As well, advancements in technologies and computer usage can bring these possibilities to people with ASD and help them learn community and social independence (Tanis et al., 2012).

Existing literature on autism spectrum disorders commonly focuses on children and their communication impairments (Biklen, 1990; Green et al, 2010; Mundy, Sigman, Ungerer & Sherman, 1986; Potter & Whittaker, 2001). Communication is often considered a building block to inclusion and, because lack of communication is a common deficit associated to people with ASD, researchers often look for any interventions or techniques that can help foster any form of communication for people with ASD (Kasari, Brady, Lord, & Tager-Flusberg, 2013; Tager-Flusberg, & Kasari, 2013). Additional research goes a step further when describing communication and reports that when people with ASD use online media, they often have more upbeat, healthy friendships (Kuo, Orsmond, Coster, & Cohn, 2013).

Potter and Whittaker (2001) continue with how environmental factors can influence autistic behaviours. The authors encourage educators to focus on the strengths of the person with ASD and to create an enabling environment for learning the life skill of communication. Communication interventions have also been researched as important to reducing behavioral symptoms in individuals with autism (Koegel, 2000).

**Assistive Online Technology**

With autism being a spectrum disorder, there is no single supportive service or resource that works for all individuals with ASD. However, it has often been described that many individuals with ASD respond to assistive online technology (Autism Canada, 2018; Autismbc, 2018; Clyde & Delohery, 2005).

Arest-Bartolome and Garcia-Zapirain (2014) found a recurring pattern throughout divisions of online technologies. They realized when technological tools are designed for specific conditions and concentrate on a specific ASD disability, online learning has the potential to promote an inclusive educational system.

Individuals with ASD are known to respond better to a screen than face-to-face interaction (Ward, Dill-Shackleford & Mazurek, 2018). By using the computer screen as a filter, online technology can allow people with ASD to have increased control over their own interactions (Grynszpn, Weiss, Perez-Diaz, & Gal, 2014). Because people with ASD often demonstrate a reduced sensitivity to stimuli, online technology can simplify communication by removing facial and vocal expressions. Sensory overload can be reduced by adjusting what is seen or heard on their computer. As stated by Baron Cohen, “presenting information visually in the precise and predictable computer format suits the autistic mind and can provide a tool or platform for developing further skills” (as cited in Rhodes, 2012, para. 8). Online technology can function in a way that can help individuals with ASD create an equalizing sensation by delivering a highly structured and visual learning display, which means that when people with ASD use online technology, they have the increased opportunity for emotional growth, improved communication and social inclusion (Girard & Magnant, 2012). Therefore, with online technologies being

able to create a controlled environment, people in the autism spectrum are able to focus on their own strengths and weaknesses (Aresti-Bartolome & Gargia-Zapiran, 2014).

### **Virtual Learning**

Computer-aided learning strives to create and maintain conditions that foster success for people with ASD (Moore, McGrath, & Powell, 2010). Virtual learning environments can often serve as teaching instruments for structuring, managing, and delivering learning activities to individuals with ASD (Ammari, Morris, & Schoenebeck, 2014; Kaye, 2000; Ohrstrom, 2011).

Advancements in technologies have allowed for the flexibility of learning strategies in addition to implementing new ways of learning and understanding (Daniel, 2006; Song et al., 2004). For example, as social media continues to evolve and gain popularity, people with disabilities will increasingly use these methods in learning (Asuncion et al., 2012). Overall, technology has become an essential part of learning and its advances may have the potential to influence the way people create, use, and develop future knowledge. When using technology, people on the autism spectrum “can learn new skills, are often more motivated, [and] show better concentration” (National Autistic Society, 2018).

Online learning “for educational purpose works on addressing the engagement issue by using fun factors to immerse learners in an active learning environment” (Mestadi, Nafil, Touahni, & Messoussi, 2018, p. 2). For many people who have struggled to learn, the use of a computer has opened doors in the educational process (Lofland, 2018).

### **Online Gaming**

Research is abundant when discussing online gaming for the general public, however, there is still limited research on online gaming for learning purposes for people with ASD (Wilkinson, Ang, & Goh., 2008). Previous studies have, mostly, suggested a positive relationship between the Internet, and more specifically online games, and the building and maintaining of social networks for the general population (Mazurek et al., 2015). Research about online gaming and people with ASD is still young, and although research can occur in a laboratory, the ability to generalize the results to a natural environment can be a challenge as what is observed in a closed environment can be very different than a natural environment (White et al., 2007).

Zakari et al. (2014) reports that ASD children's games could provide a data analysis or visual support systems as children on the spectrum seem to interact well with technology while they find it difficult to relate to their environment. Mestadi et al. (2018) expands on Zakari et al.'s findings and holds that online educational learning "... relies on combining and balancing game elements (game characteristics, game mechanics, and gameplay) with learning factors (domain content or knowledge, skills, and learning mechanics)" (p. 2).

It needs to be remembered that although online games are commonly geared toward children, online games are also played by adults as well as people with ASD (Mazurek et al., 2015). Mazurek describes that even though people with ASD may have limited engagement in social and community interaction, they have strong interests in video games and therefore, by linking video games and learning together an education resource can be created (Mazurek et al., 2015). Online games have the potential to:

“provide a limitless platform for social interaction that could be incorporated as part as of intervention program” (Wilkinson et al., 2008, p. 380).

A virtual learning environment can support people with ASD to learn to solve social problems. The natural simulations purposely assist the individual using an avatar that looks like a person with realistic facial features with the hope that what is learned can be transferred to real-life scenarios (Bishop, 2003; Moore et al., 2005). Facial recognition is most often learned through virtual technology (Cheng & Ye, 2010; Cheng, Moore, McGrath, & Fan, 2005; Moore et al., 2005). A virtual reality-based learning environment can also be adapted to include particular elements needed to support the individual learner needs.

Online gaming may also support people with ASD to form and encourage the creation of new friendships and nurture existing ones, therefore possibly decreasing feelings of loneliness and promote communication when online gaming is utilized (Sundberg, 2018). Further, Sundberg (2018) suggests “a possible implementation of online games as a social skills training tool among individuals with ASD” (p. 109). Gallup, Little, Serianna, and Kocaoz, (2017) found that socialization and communication is positively enhanced when people with autism play multi player online role-playing games. In a recently published article, researchers go on to say that online multiplayer games also allow players to initiate and sustain interactions when their platforms use speech to engage in conversations (Stone, Mills, & Sagers, 2018).

With research slowly increasing about online gaming and people with ASD, concerns have been raised about their video game usage. Most research articles acknowledge and point out the impairments of people with ASD, but then the concerns

arise because of these difficulties and their limitations to recognize inappropriate behaviours and possible online dangers (Just & Berg, 2017; Hyun et al., 2015). It has been found that male youth with ASD are more likely to become compulsive internet and game users and therefore can have a negative impact on them if not monitored (MacMullin et al., 2015). There will always be challenges with online computer usage and people with autism, but with proper teaching and monitoring many issues can be decreased or eliminated completely (Just & Berg, 2017; Torres-Rodriguez et al., 2017).

### **Online Game Development**

Game development is a complex multidisciplinary task that involves many features including programming, graphic, and game design; however, before any of these aspects can become reality and an online game is formed, research needs to take place. The research is also multifaceted as the design “requires a strong knowledge of learning domain, pedagogy, and game design components” (Mestadi et al., 2018, p. 1). Online games provide structured, interactive environments for challenge and achievement with the intent to attract a target audience. The target audience is an important factor for the development of the game as the game objectives need to be written with the target audience in mind.

Online games have become a worldwide sensation (Chikhani, 2015). They have developed into massively multiplayer online games (MMOG) and massively multiplayer role-playing games (MMORPG) within which a huge number of players interact with each other within a virtual world. The game itself resides on a server and players interface with the program in the form of interactive storylines where characters are real people in different places around the world. In a multiplayer game collaboration is

important as players often group together to accomplish common goals (Hugos, 2012). The virtual world in a MMORGs is not static as the game keeps evolving and events keep happening in the game even when the player is away from it (Williams, Kirschner, & Suhaimi-Border, 2014). Online games provide people with an immersive experience where players from all over the world can work together “to achieve a sense of emotional fulfilment upon completion of in-game objectives” (Pietersen, 2017, p. vii).

The gaming industry has become a multibillion dollar business that continues to grow and evolve as it produces new innovative products to meet the needs of game players (Nae, Prodan, & Fahringer, 2011). For example, Microsoft, a multinational technology company creates, supports, and sells computer software (Microsoft Canada, 2018). Microsoft is committed to diversity and inclusion efforts and “has learned that diversity is not a finite goal; it is a journey that requires constant self-assessment and recommitment” (Global Diversity and Inclusion, 2018). Their approach involves feedback from potential consumers for the purpose of receiving accurate, up-to-date information in order to develop new, future products. Microsoft recognizes the power of technology and continues to believe in sharing what they have learned so all people can move forward and have the ability to achieve more in life (Our approach, 2018). Microsoft believes in empowering all people through their software, and therefore, the development of new creative approaches, including online games, is a valuable way to help people with disabilities overcome specific issues, barriers or challenges.

Apple, on the other hand, is a multinational technology company that revolutionized personal technology in the 20<sup>th</sup> century. Apple Inc. designs, manufactures, and sells consumer electronics, computer software and services, networking solutions,



and third-party digital content and applications (Reuters, 2019). Its products and services continue to grow which has made Apple of the most popular and largest technology companies in the world. Apple Inc. (2019) also recognizes diversity and promotes individual differences:

“At Apple, we’re not all the same. And that’s our greatest strength. We draw on the differences in who we are, what we’ve experienced, and how we think. Because to create products that serve everyone, we believe in including everyone.”

Apple Inc. has developed numerous video games that have the ability to attract a wide audience with varying wants and abilities. Apple Inc. is a company that tries to satisfy the diverse interests of every consumer by offering a wide variety of technology and services.

Although Microsoft and Apple are technology conglomerates, there are video game companies that solely focus on online games. Blizzard Entertainment is a maker of computer games and has become a popular game developer and publisher. It is an interactive entertainment company that focuses on “a well-designed, highly enjoyable entertainment experience” (Blizzard Entertainment, 2019). Blizzard continues to improve their existing games and create new games to keep their consumers interest and allow the consumer to explore new exciting worlds.

Overall, online gaming is a growing industry with many companies competing for the gaming consumer. Video games are often thought to be reshaping the way people interact with the world and as new games enter the consumer market the gaming industry steadily tries to push the boundaries and therefore create new exciting game designs and technologies.

### **Summary of the Literature**

The literature reviewed in this chapter illustrates an ordered pattern of discovery, from how this study topic originated to current information and research for online gaming for people with ASD. Theories on ASD have changed and evolved because of research. Common research strategies have tried to answer the why and how autism has become a part of so many people's lives, but as research has progressed and the research interest has slowly shifted to include options or programs that have the potential to enhance or improve the lives of people with ASD. At the same time, research is investigating different learning techniques that can be individualized for each person with ASD and their particular disabilities. Researchers are now exploring how gaming can be an effective form of learning for people with ASD as there is little question that online gaming can have the potential to play a significant role in social development and interaction for the general public.

As the world of online gaming continues to grow and expand, the question arises to why this platform cannot be used as a valuable resource for learning for people with ASD. Growth is continuing in the development of new online games to enhance the lives of people with disabilities. Software companies such as Microsoft or online game manufactures such as Apple and Blizzard, actively dedicate time, effort, and money for research to learn about diverse individuals and communities to help develop new software.

Overall, the studies in this literature review support the use of the Internet for people with ASD. Online gaming can be a positive experience for people with ASD and as they continue to choose to engage in computer activities research will also continue to

grow. Also, as research expands so will the answers to the questions about online gaming as a learning resource for people with ASD.

### **Chapter 3. Methodology**

#### **Introduction**

Qualitative research is about discovery (Williams, 2007). It is conducted “because a problem or issue needs to be explored” (Creswell & Poth, 2018, p. 45). Qualitative research focuses on an experience in its natural setting in all its complexity (Leedy & Ormond, 2010). Research approaches can vary widely when studying a phenomenon; however, qualitative research offers potential to add a new dimension to studies that can be used to understand people’s beliefs, experiences or behaviours (Pathak, Jena, & Kalra, 2013). Qualitative research methods also have the potential to generate in-depth, descriptive inquiry that can lead to an increase in understanding a specific phenomenon.

#### **Phenomenology**

Phenomenology explores the meaning of people’s lived experiences. It can be further described as a philosophic attitude and a qualitative research approach. (Flood, 2010). Phenomenological research “seek(s) reality from individuals’ narratives of their experiences and feelings, and to produce in-depth descriptions of the phenomenon” (Yuksel & Yildirim, 2015, p. 1). This approach focuses on describing the similarities of the participants as they experience the phenomenon and learning from the experience of others. The beginnings of phenomenology can be traced back to Edmund Husserl whose central doctrine is based on the belief that consciousness is intentional (Fasching, 2012). He brought forward phenomenology as a philosophical way of thinking with the idea that experience is purposeful as it is directed toward something by virtue of its content or meaning (Tassone, 2017). Husserl explored how to get objective knowledge through subjective means. In other words, he wanted to provide insight into people’s experiences

through their own words and understanding (Christensen, Welch, & Barr, 2017). For Husserl, “the aim of phenomenology is the rigorous and unbiased study of things as they appear in order to arrive at an essential understanding of human consciousness and experience” (Dowling, 2007, p. 132). Husserl’s view strongly addresses the meaning things have toward the experience itself and that the meaning of the experience may be separate from what the experience presents. These vivid descriptions can be considered inductive as well as dynamic as they are based on the reflective attitude that is only accessible by the person’s own meaning.

Phenomenology, as a qualitative research approach, can be described as a reflection on human experience (Moerer-Urdahl & Creswell, 2004). It searches for meaning and relates to the subjective experience rather than the content of the study, and is the primary method which, as described by Giorgi (2009), explores “the attitude of everyday life, the attitude that one displays in the everyday world where most things are taken for granted” (p. 89). It pushes the researcher to develop a new understanding of a person’s own experience of the facts or events rather than only the abstract experience of others. It focuses on the meaning of the research by understanding the research from different angles and perspectives as it looks for, and examines, patterns within the complexity of the phenomenon. Phenomenology can be further described as “a research design used to study deep human experience” (Blodgett-McDeavitt, 1997, p. 5). As stated by Giorgi et al. (2017):

When we reflect on our lived experiences we become aware of them but not because they appear. Appearances are correlated to things of the world in a

manner of being known [which] is different from the way we know our lived experiences. (p. 178)

Whenever the phenomenology is defined, the phrase ‘lived experience’ is commonly used as a description. These words are seldom explained, but instead are assumed to be understood. To get a greater understanding of ‘lived experience’ a person needs to know the origin of the term. “Lived experience’ is a term “derived from the German *Erlebnis* – experience as we live through it and recognize it as a particular type of experience” (Van Manen & Adams, 2010, p. 450). The idea of exploring an experience directly is a way of capturing and understanding the experience’s real meaning. As described by van Manen (1990):

Lived experience is the starting point and end point of phenomenological research. The aim of phenomenology is to transform lived experience into a textual expression of its essences – in such a way that the effect of the text is at once a reflexive re-living and a reflective appropriation of something meaningful: a notion by which a reader is powerfully animated in his or her own lived experience. (p. 36)

Although phenomenology can be traced back to philosophical ideals, it has evolved into a powerful qualitative research methodology. Using this modern perspective, phenomenology can be divided into three categories: hermeneutic phenomenology (interpretive) and transcendental (descriptive) phenomenology. This study follows the descriptive phenomenology approach.

### **Descriptive Phenomenology.**

Descriptive phenomenology emphasizes the pure or actual description of people’s experiences. This descriptive phenomenological study involved a small group of high functioning people with ASD who shared a single common experience of learning

communication skills, and explored the essence of the participants own lived experiences of communication within their online gaming. This inquiry focused on the participants' own words and their own perspectives as a personal description of their experience. The study was designed with the expectation of understanding the essence of the lived experiences from the various perspectives of the participants.

By using Giorgi's method of analysis for this research, the meaning of the phenomenon was uncovered through the identification of essential themes (Giorgi et. al., 2017). By ensuring the researcher takes on an observer role in the study, thus separating herself from the study and displaying no bias interesting and unique data was produced. This approach allowed for an exploration of the subject which in turn allowed the focus of the research to be differentiated from the resulting data. The research helped to broaden the understanding of the lived experiences of the study participants. Overall, this descriptive phenomenological method provided a deeper, richer understanding of how people with ASD understood the meaning of the experience of online gaming as a communication learning platform.

### **Role of the Researcher**

Qualitative research can help researchers access the subjective thoughts and feelings of the participants which can further help facilitate a deeper understanding of the meaning that people attribute to their experiences (Sutton & Austin, 2015). A researcher conducting qualitative inquiry commonly becomes interpersonally acquainted with the participant in their own life and environment as a means to more fully understand the participant's lived experiences. As the researcher for this study, my role included entering into a somewhat closer relationship with each participant to understand what they revealed to me during the interview process. I needed to make sense of each participant's experiences, be able to describe their experiences, and differentiate the meanings shared by some or all of the participants.

**Bracketing**

Phenomenology focuses on the meaning of an experience. As Creswell (2007) stated: “it is important that researchers describe their own experiences with the phenomenon under study in an attempt to set aside the researcher’s personal experiences so that the focus can be directed to the participants in the study” (p. 159). For a researcher to fully understand and interpret the lived experience of a participant it is important for the researcher to not influence the participant’s understanding or expression of the phenomenon. According to Husserl, a researcher is required to suspend personal judgement in order to get to the pure phenomena from a participant’s point of view (Vagle, 2014). Therefore, in the interests of complete transparency, it was essential for me, as the researcher, to engage in a process of self-discovery, compartmentalizing my own knowledge and attitudes, and embracing the phenomenological attitude required for this research. This process of bracketing allowed me to be non-judgemental and set aside any personal suppositions throughout the research process in order to focus and describe the pure essences of the phenomenon.

Therefore, through reflective and reflexive self-exploration, I became aware of my own pre-conceived beliefs and assumptions about autistic individuals, about online gaming, and about my own self in the entire research process. I became better able to engage and appreciate what the participants shared with me.

**My Story.**

I come from a background of working in specialized group homes for people with intellectual and mental health disabilities. Although the people I have worked with have what many people consider debilitating disabilities, I have always seen the person first



and have wanted to hear what they want or like. I have never wanted to speak for someone else, yet it is very common in my line of work for family or caregivers to speak for the disabled person, even when it is done to inadvertently silence the person. Maybe this is why I have always been asked to work with very challenging people and have had notable results while working with them. I believe that even if someone is considered to be nonverbal he is still able to tell a story and definitely has the ability to get their opinion, or point, across to anybody and/or everybody around him. Every person has the ability to learn; however, there are times when learning something can take a bit more time or a suitable learning method needs to be found for an individual. The same goes for this research study – every participant has something valuable to say and if it takes a bit longer for their idea to come across that is no problem and I will wait until the participant is able to communicate his or her thoughts.

I wanted to complete a research study on a topic dear to my heart and would have the potential to help people learn while doing something they enjoy. I have worked with people on the spectrum before, but on the lower end where constant care was required and verbal articulation was an issue. I wanted to complete a study that could help with communication as I believe communication is the basis of expressing and exchanging thoughts and ideas in a, hopefully, positive manner. I wanted my study to be completed in the participants' own words, hence a phenomenological study, with participants who truly understand the difficulties with communication.

I believed that my understanding of autism was quite clear as to what to look for during this research study. Because of my knowledge and experience, I came to this study with the beliefs that people with autism often express themselves through actions

and behaviours, so being aware of other methods of communication is important, as supported by Noens and Berckelaer-Onnes (2005). I have experienced that verbal words may be able to give accurate data, but non-verbal communication can enrich the data further. Speech itself also contains nonverbal elements that can be interpreted as communication; pitch and volume can indicate excitement or anxiety. It is my understanding that during the interview, if echolalia occurs it is a sign of not understanding, and therefore clarification is needed. On the other hand, silence or non-speech can indicate a feeling of unsettledness so it is up to the researcher to interpret what a participant has said or how to articulate what a person wants to say. Depending on the physical cues, the researcher (me) will decide what direction to take the interview as the interviewer does not want the participant to be uncomfortable or shut down in any way.

In summary, I approached this study with the pre-conceived truth that people with autism are all different with varying degrees of difficulties and it is the responsibility of myself as the researcher to be able to distinguish the cues of the participants and ensure that they are comfortable with little or no anxiety present. It was important that I place the well-being of each participant above the study and guarantee that their emotional health was always a priority.

### **Preliminary Inquiry**

The purpose of this preliminary inquiry was to (a) use the information to identify key variables impacting the participant's willingness to communicate about their own online game usage; (b) identify key elements in an online game that the participant enjoyed, and (c) test the different data collection strategies.

### **Location, Participant and Game Choice.**

This preliminary inquiry had only one participant and it was conducted in the home of this individual. The participant chose this location because it was where she felt safe and most comfortable. The single participant was selected because of her childhood online gaming use as she had a favourite online game that she played on a regular basis as a child. Selection procedure was also based on convenience, but care was taken to ensure that the selected participant was able to represent various dimensions that are important to the study in terms of age, knowledge of computer usage and geographical location. The participant played a specific online game for about three years as a child, through the ages of 12-15, then again for a week for this pilot study when she was 19 years old. This age distinction was valuable for this study because she was able to describe the game and what she learned as a younger person including who she met online, yet she was able to articulate her words as an adult which provided valuable information for the design of the second phase of this research.

The online game the participant played was *Horse Isle*, a multiplayer online role-playing game which allowed and encouraged the players to interact while moving through the game. The players spoke to each other as they explored the lands and traded horses and horse paraphernalia. The game was non-violent, and contained filters to ensure language and communication content was appropriate for all ages. She had chosen this game for its content as its focus was horses, a topic she enjoyed and wanted to learn more about. The online game involves many details of horse ownership and life in general as it teaches about jobs and income as well as what is required for pet ownership.

### **Data Collection.**

The participant was already familiar with the online game, therefore for this inquiry she was able to quickly reacquaint herself with the game and then choose how long she wanted to play the game. Two different techniques were used in the preliminary inquiry to gain a more in-depth understanding of the participant's perceptions and experience with player communication within the online game. This included conducting an interview via Skype and documenting non-verbal communication cues. The procedures for each of these techniques are described below.

### **Interview.**

The participant chose to have the interview where she felt most comfortable which was in her home, in the privacy of her bedroom. She also indicated that using Skype was her choice over a face-to-face interview as she believed it would be less intimidating. All questions were asked through separate computers with Skype. The interview was semi-structured with verbal prompts to fully investigate the research topic.

### **Observations.**

The interview gave a verbal account of the online game and the communication associated with it, but the nonverbal cues also gave valuable information to the preliminary inquiry. Focusing on participant's expressions and her eye contact allowed for a better understanding of the questions asked by the researcher. It was easy to see when the participant did not fully know what was being asked and clarification was needed as she would look away or look down at her hands. When the participant began to look away from the computer and speak in vague terms it was noted that her attention span was decreasing and the interview should end soon.

### **Results.**

The preliminary inquiry was a valuable learning tool for this research study. Several minor challenges pertaining to research quality were identified and gave information on how to conduct the research study. For example, in the preliminary study the interview narrative was initially difficult because of the numerous verbal pauses and not knowing what to say. Additionally, this “test” interview yielded a general feel to how the main interviews would go. It helped to understand what scenarios were likely to be faced when doing the main study. As well, communication flow was aided by ensuring the participant had control to make decisions on her comfort level and interview location.

The content of the interview demonstrated the questions that needed to be simplified and easier to understand, examples of verbal prompts that may be needed for the future interviews, and finally, the approximate length of the interview to ensure the participants do not become uninterested in this research process.

After this project was completed the researcher asked the participant about the study itself. The participant’s replies were open and forthcoming. More specifically, the participant said the online game should be fun and involve something that a person likes, which for her was horses. She also said that it is easier to talk about something that a person liked. She went on to say that the online game *Horse Isle* was also fun because she did not have to worry about other players being mean or being bullied. She liked how the other people in the game shared her love for horses and enjoyed talking to others about them too. The participant described how she made friends on the game and looked forward to “seeing” them when she played the game. She found herself looking for her old friends when she went back to the game for this preliminary study, of which she found one and they are now in contact outside of the game. The participant was very

happy to have been a part of this preliminary study and felt fortunate to have reconnected with an old friend.

## **Data Collection**

### **Game Selection.**

Playing online games can often be considered to be meaningful and purposeful activities, and hence, an important part of a person's life. Computer games are often of special interest to people with ASD as they can potentially present a safe, appealing, rules-based environment (Wilkinson et al., 2008). Although video games are commonly used for leisure, this research utilized online games as a means to support learning communication skills.

There are endless choices for an online game, but sometimes there are games that favourably stand out for a particular person. Because people with autism often suffer from sensory overload, game choice was an important factor in helping lessen or limit any anxiety or discomfort. Finding autism-friendly games involved searching for online games with a suitable visual environment because if a participant liked the online game, less stressors would be present, whereas if a participant was told to play a game they did not like, problems such as anxiety or challenging behaviours could occur. Also, if a person does not like their online game choice, they most likely would not be a part of this research study.

Specific considerations for game selection were important factors when choosing games for this study. The graphics for the online game varied for each game and the participant was able to choose the game that was most appealing to him or her. Criteria included:

- The game was at no cost to them.
- Each online game was a commercial multiplayer game with a clear narrative which required players to work together in order to overcome challenges, advance, and then succeed in the game.
- Because people with autism often are more comfortable with structure and routine, the online game also included the characteristics of problem solving, adaptability, and conflict resolution which required specific steps to complete.
- Options for collaboration or competition were built into the game to encourage participants to develop and reach common goals, and to navigate through the game.
- The game was publicly accessible over the Internet; therefore, participants could continue to play the game after completion of the study if they chose to (e.g., if new friendships were forged during the study experience).

As described in autism websites, blogs, and personal comments from articles on autism, there are popular video games that people with ASD are said to prefer to play. For this study there were three online games that were suggested as being possible choices for game play: *Minecraft*, *World of Warcraft*, and *Runescape*. The online game *Minecraft* was mentioned in numerous websites as it encouraged creativity, cooperation, and provided the freedom for the game players to focus on what they wanted to accomplish in the game. It also allowed the players to control their game's environment while still encouraging social interaction (Autism Speaks, 2018; Gallup et al., 2016; Kulman, 2016). *World of Warcraft* was another extremely popular game and may even be considered the most popular multiplayer game in the world (Tan, 2018). It, too,

involved socialization and a sense of achievement as the game progressed to new advanced levels and the given challenges were completed. In the online multiplayer fantasy game, *Runescape*, players were able to discover new kingdoms and participate in story-driven quests. Each game also offered online forums for its participants which allowed additional discussion and sociability. The players for each of these three multiplayer online games endured various adventures and interactive activities, and therefore, these games were offered as game choices for this study.

### **Recruitment.**

There are no specific rules to the number of participants required in a qualitative study; however according to Creswell (2014) a recommendation of five to twenty-five participants are sufficient to conduct a phenomenological study. For this phenomenological research, because this study emphasized an accurate account of research topic, or phenomenon, the study sample was small in size.

Recruitment occurred through purposive and snowball sampling as all the participants were 19 to 36 years of age, had everyday access to a computer, had been diagnosed with ASD, and were high functioning people with autism. Because they were high functioning adults, they were legally fully able to participate in this research and put forward their own opinions and viewpoints of learning communication skills through the use of an online game.

Eleven participants initially were recruited online through Canadian autism awareness organizations including AutismBC and Autism Canada. Two were recruited by word of mouth. A participant recruitment poster (Appendix B), approved by the Research Ethics Board (REB), that was posted on the autism websites stated what this research was



about, what was required, and the researcher contact information. For the two word of mouth recruits, interest of this study originated from a family member who recommended the study to the potential participant.

The thirteen potential recruits who initially expressed an interest in participating in the study asked questions and completed the consent form. Once their questions were answered, they were eager to become part of this research. However, four people dropped out of the study citing personal reasons or personal time constraints. As a result, this study proceeded with nine individuals, and was non-gender specific. Any additional questions were answered prior to beginning the study.

### **Description of the Participants.**

Participants represented a wide range of people with various interests and circumstances; for example, participants living semi-independently in a parent's home to participants in supported independent living to participants being completely self-sufficient and independent. They were also in an array of different relationships as some were single, others had partners, and others were married. As well, while different in many ways, participants had one noticeable commonality – online gaming. Although they each had a different favorite online game they played on a regular basis, they all were familiar, or knew of, at least one of the research suggested online games, Runescape, World of Warcraft or Minecraft. Online gaming was an important aspect of each of the participants' lives. All the participants have played various, massive multiplayer online role-playing (MMORPGs) and consider their game playing as a significant part of their everyday activities. Therefore, even though they played the online games for different reasons, they all felt they were knowledgeable about the

gaming industry. It was this familiarity that allowed each participant to voice their individual attitudes and judgements toward online gaming. The participants were all very forthcoming and embraced the opportunity to talk about their experiences with online gaming. Each participant's experiences were special to them and therefore their viewpoints about the phenomenon were described in a manner that was unique to them as well.

### **Individual Participants.**

Each participant was contacted by myself, the researcher, to ask if they would like to add any description of themselves for this section in the study. Each participant received the same email saying the researcher would welcome anything he/she would like to say about him/herself and reminded each participant that everyone was only identified by their initials so there would be anonymity. The email also said it was completely voluntary and the researcher wanted to give each participant this option. Most importantly, I wanted to ensure that each participant had the opportunity to describe themselves in their own narrative. All of the information included in this section was specifically requested to be included in this report.

**ER.** ER was a 23-year old woman who has been playing massively multiplayer games for more than a decade. She was very open with participating in this research and the one game she played with any regularity was the MMORGPG Runescape.

**CB.** CB was a 25-year old woman with Autism and attention deficit hyperactivity disorder (ADHD). She was familiar with Runescape, but her favourite multiplayer game was Fortnite. Even though she enjoyed Fortnite's simplicity she was always ready for the next match. She played World of Warcraft in the past, but it was not her favorite and she

would rather play Runescape or Fortnite. On a more personal note, CB's family has been very supportive of her and her choices as whenever she spoke of her family it was with admiration. Throughout our conversation CB described how she still lived at home with her family and had lots of fun playing MMOs with her brother.

**KM-NB.** When speaking with KM she came across as a very straight forward young adult who enjoyed playing Minecraft. KM was very clear and concise with words and requested to be described as non-binary and to use *they* or *them* as pronouns.

[Researcher's note: For clarification, non-binary people often self-identify as neither male nor female. Also, for people who are non-binary their "gender identity lies outside the boundaries of a strict male-female dichotomy" (Liszewski, Peebles, & Arron, 2018, p. 2391). They express themselves by non-conforming to the male/female stereotypes or label as they cannot be characterized exclusively as either gender.]

**MH-F.** MH was a 30-year old practicing lawyer at the time of this study. She accomplished an incredible feat of graduating from law school at the age of 22 and possibly being Canada's youngest lawyer at the time to be called to the bar. In addition to be practicing law, she currently manages a law practice that has ranged in size from just herself to six other lawyers. She also teaches both sessional post-secondary classes and law related classes to the private sector. Her son is also autistic.

**KM-M.** KM was a 20-year old man who played Runescape from the ages of 11-14. He has enjoyed online gaming for a long time and was very straight forward with his gaming opinions. He continues to be strongly into fitness as he likes to work-out, bike, and run a lot. KM also believes in self-development. He is currently employed in the field of computer programming.

**GE.** GE was a 37-year old man who has been actively gaming since he was 28. He has played many MMOs over the years and has been playing the MMO Vikings War of Clans for about 3 years now and plays it about two to four hours a day. He was recently diagnosed with autism and is currently learning more about ASD. GE was very approachable and when asked what he would like to say about himself he offered a wonderful description. [Researcher's note: GE requested that the following narrative, in his own words, be included in this report.]

How I perceive myself is different from how other's do for sure. Also depends on my mind frame as well which I been working on by learning as much I can about ASD and which has led me to vitamin deficiency. I feel a big difference with supplements. I do like to spend time looking into these things. I don't spend a lot of time at once but a bit of info here and there all adds up and I have a lot of things I could argue about with the medical community for sure but that's another subject on its own.

With finding out about ASD at age 37 has been putting a twist on life for sure and has put a lot of answers to the areas it has effected but also feels like I got excuses for everything now which I don't like to do. On one hand I lived a decent life with a fair amount of stressful situations to deal with and come out pretty good considering the odds against me in life. I like knowing how far I did get without the knowledge of ASD and think it would have changed my path in life greatly if I knew at a younger age. I was born in Nova Scotia and lived there till age 12 and then here in Ontario till I was 18 then I moved to Alberta till age 35 before I came back here to Ontario. Alberta is by far a great example to our country how it

should be run. My first year there I made only 13k and only went up steady from there, lol, which is easy but I ended up with a great company for the last 6 years' and was able to make 60k plus working Monday to Friday with holidays off and not to mention without a grade 12. The owners are great people and out of the 30 plus jobs I had over the years these people will always put other employers to shame in many ways. Part of me regrets coming back to Ontario but then again I may have not of learnt about ASD. I do believe the reasons I learnt about ASD is because I have done nothing but struggle with work since I been back here and trying to get somewhere. I can work real hard and learn in different ways but the snobby employers in Ontario are hard to deal with and they have a standard I don't fit and think a grade 12 is a golden badge. Lol. I know the difference of educational teaching and being obedient teachings. I can go on but that's all for now.

**MH-M.** MH was a 35-year old man who currently works in the video game industry as a game designer. He has played Runescape, had some experience with World of Warcraft, and previously played the MMO EVE Online. He definitely enjoys playing online games, but MH often looks at games by their mechanics and how they are put together. He described at as the game designer in him. MH is married and has 2 children.

**KED.** KED was a 27-year old man who lives on his own and thoroughly enjoys online gaming. Gaming is a very important aspect in his life as he has been playing MMOs for many years and spends a lot of his time engaging with people through his online games. He was familiar with World of Warcraft, a suggested game for this study,

but preferred to play Final Fantasy 14. In addition to online gaming, KED chooses to follow YouTube documentaries on the gaming industry. He finds these videos interesting and likes to keep updated on what is happening in this specific industry.

**EF.** EF was a 22-year old man who would like to make a career out of online gaming. He has played a variety of online game, from MMORPG games to esports. He has played online games for many years and has now, however, become somewhat bored with them. Although he still enjoys playing these games, he has decided to become a game designer. He has begun to design an online game; he has a game concept in mind, game plots thought out, and, at the time of the interview, was currently working on character development.

EF was diagnosed on the high end of the spectrum at the age of 12 and only slightly below the allowable diagnosed level. The only reason he was tested for autism was because of social issues which continue to be a constant struggle. He had his first job last summer and is looking forward to his future in online gaming.

### **Interviews.**

Semi-structured interviews were conducted with attention to the well-being of the participant. Each participant was able to choose what would work for each of them in terms of location, time needed to play the online game, when to conduct the interview, and whether to converse via Skype, face-to-face, or by phone. Participants first played the online game they chose for this study. Then, once they had played as much as they desired, the study interview was scheduled.

In the interview, the researcher asked five probing open-ended questions to help bring out what the participant experienced during the research. The responses of the

participants dictated how and which questions would be asked next. The interview questions were in-depth, semi-structured in nature, and consisted of key questions that helped explore their online learning experiences (see Appendix D). The questions were structured to analyze the experience while still clarifying the phenomenon. They also explored the participants' experiences with the hope to not limit any responses and instead to encourage the participants to freely express themselves. These interview discussions allowed the participants to share their stories with the researcher in an open, yet semi-structured manner. Each participant also expanded on the open-ended interview questions as they felt appropriate and addressed their opinions accordingly.

Interviews were recorded to facilitate accurate data collection and transcription. The interviews that occurred through Skype were audio and video recorded through the Skype recording app and the telephone interviews were audio recorded through a pre-installed app on the researcher's cell phone. The face-to-face interview was audio recorded on the researcher's cell phone. The interviews were then transcribed soon after they were completed. They were transcribed verbatim and a copy of these narratives were given to each participant to review and edit as desired. Through this member-checking process, participants ensured that their opinions and thoughts were properly displayed in their narratives. Member-checking for this data is described more thoroughly in the *Rigor* section.

In addition to interviews, non-verbal cues and behaviours were noted in the researcher's memo journal. These cues include eye contact, gestures, body, facial expressions, and looking at a person while talking or listening, as they can all demonstrate the willingness or non-willingness of a person with ASD to interact with the

researcher (Grossman & Tager-Flusberg, 2012). Utilizing non-verbal communication may give “an increased understanding... and allow to corroborate speech narrative (i.e. triangulation)” to the data collected (Denham & Onwuegbuzie, 2013, p. 674). Nonverbal communication may be considered to be a valuable resource when completing a study with people with ASD as all these indicators can help describe how the participant interprets the interview and the overall research topic.

### **Data Analysis**

All the participants had a fascination with online gaming. Their passion for game play may be regarded as a self-stimulating behavior which, in turn, is considered a common criterion for autism. Consequently, playing an online game for this study encouraged the participants to think about their own game play as well as to help better answer the interview questions.

The bulk of the research data was received through the interviews and observations during the interview. Analysis of this data then followed Giorgi's (2009) approach for descriptive phenomenology data analysis. The analysis began with transcribing the interviews which included precise statements and nonverbal communication cues. Once transcription was completed all the research data was approached with an open mind to recognize the emergence of any meaning. Repeated readings of the participant's descriptions of the phenomenon allowed the researcher to gain a greater understanding of the data as well as a fuller appreciation for the participants' online gaming experiences. This helped to reduce the volume of data content for further analysis. Meanings were formulated and categories emerged. Focusing on phrases and sentences in the transcripts revealed essential information about



the study experience. NVivo, a management software, was used to sort and store the transcribed data. NVivo allowed the researcher to have all the data on a single platform for easier analyzation. It also helped to put the data together in a meaningful way through the reorganization of codes as well as the combining of research nodes. By using NVivo, connections that were not initially seen became easily recognizable. Analysis continued with identifying themes and similar concepts shared by the participants. Theme categories or clusters were formed, thus giving rich descriptions to the study. These rich descriptions provided the researcher with insight into how communication skills can be developed and used through online gaming.

**Rigor**

Rigor brings legitimacy to a qualitative research study (Creswell, 2014). Because a researcher in a qualitative study tends to bring their own uniqueness to their study, it is necessary to ensure the researcher demonstrates an accurate picture of the phenomenon. Although phenomenology may be a journey of explanation and discovery without rigid boundaries, it is not without rigor and authenticity.

Member checking occurred to ensure accuracy and trustworthiness. After each interview was transcribed the participant received a copy of their interview to review, edit as desired, and approve. The participants were asked to read their transcript to confirm that their viewpoints were clearly stated. If any changes to the transcripts were requested, these alterations were added to the transcripts. Only one participant requested changes to his transcript. In this case the ideas remained the same, only minor clarifications were added. All participants approved their transcripts and data analysis occurred soon after.

Bracketing occurred throughout the study to help strengthen the integrity of this phenomenological study. As stated earlier under the heading of *Role of Researcher*, bracketing was an important step for the researcher to ensure objectivity and reliability. It was up to the researcher to make sure that the participants conveyed what they wanted in the interview and to feel comfortable in saying their personal thoughts and beliefs about online gaming.

Face validity was also utilized as a way to ensure research accountability. In order to accomplish this, I met with my Faculty Thesis Supervisor on a weekly basis through Skype. Dr. Blodgett-Griffin kept me on task and helped me focus on what needed to be done to have a thorough and complete research project.

Rigor was further boosted by the completion of a preliminary inquiry. The preliminary inquiry allowed the study to begin on concrete, lived experiences of an individual and ensured the study was not solely based on the researcher's insights or prior knowledge.

### **Ethical Considerations**

**Confidentiality.** Privacy was an important factor for this study, and therefore there was an emphasis on protecting the participants' identities. No names were recorded in the interviews or transcripts and identification of each interview was carried out by using the participants' initials. It was found, however, that four participants (2 males and 2 females), had the same initials. More specifically, one woman and one man had the initials "KM" and then another woman and man had the initials "MH". By adding gender distinction to these participants' initials, participant differentiation was notable. Also

because gender participation was now identifiable in this study, additional data analysis could be performed.

**Research Ethics Board Approval.** This thesis research study was approved by the Research Ethics Board (REB) at Athabasca University prior to the start of this study (Appendix A). Compliance to the Tri-council policy statement (2014) was paramount and was based on the three core principles of respect for persons, concern for welfare, and justice. The participants in this study, high functioning people with ASD, are considered to be a vulnerable research population (Medical Research Council of Canada, et al., 1998) so additional ethical concerns were present and therefore addressed.

**Consent.** The study formally began only after informed consent was given by the participant. (see Appendix C.) Prior to any interview, emails were exchanged between the potential participant and the researcher to describe the study and explain what was required. All potential participants were encouraged to ask any questions pertaining to this research and their role in it before they granted their consent. After each participant read the consent form, agreed to, and signed it, the individual then commenced with their chosen online multiplayer game.

**Procedural accommodations.** To ensure all participants felt safe, secure, and protected, the subsequent measures were followed:

- During the interviews, the participant was able to stop the meeting at any time for any reason;
- During the interview, if a participant displayed any sign of anxiety or distress the interview would be immediately halted;

- During the interview, if echolalia (repeating of words) occurred, it was a form of communication and a sign of not understanding, which therefore meant additional clarification was needed;
- To ensure privacy and confidentiality, real names were not used and any personal details disclosed were omitted.

**Reflection**

As I look back at Chapter III I see that the methodology section of this study was well thought out, however, as I completed the research I needed to add a couple options to ensure the well-being of the participants. There were also unforeseen details about gender that came to light that needed to be addressed. Any changes I made further enhanced the data collection and to improve the reliability of the study itself.

First, face validity was utilized as an additional measure of creditability for the study's content. I initially had no idea how important my weekly meetings with my Faculty Supervisor would become. The information I received from Dr. Cynthia Blodgett-Griffin gave me confidence and reassurance my research was of value. Dr. Blodgett-Griffin's knowledge of research and the phenomenological approach was invaluable and helped me focus on the core values of this research. She created a subjective assessment that served as a voice of clarity and judgement every time we spoke.

Secondly, when I started this study, I assumed that I would be analyzing my research with gender in mind. I only thought of genders as male and female or the sex each person was born into, but when completing this study, I had one individual who identified themselves as non-binary. With this important detail in mind, I needed to add

one more gender type to satisfy aims of this study. Therefore, this research included the genders: male, female, and non-binary.

Lastly, the participants were self-aware of their disability. They were all high functioning autistic adults and were able to tell me what worked for them, and what did not work for them, when conducting this study. Having safeguards in place were an important study concept to ensure the safety of the participants, but I was pleasantly surprised that these participants knew their own limits and did not require any additional precautions.

### **Summary**

Communication is an essential part of life. With effective communication people are able to connect with others and effectively express their thoughts, beliefs, and ideas. This research focuses on the improvement of communication skills for people with ASD. Multiple perspectives from different people with ASD were used to produce a comprehensive understanding of the phenomenon. It is through a full awareness of these diverse viewpoints and experiences obtained from the participants that this research was able to be explored.

People with ASD may have a lifelong disability, but with the use of online games it may be possible to improve their communication abilities. Every person with autism is different but creating online games to teach and support communication skills may help to contribute to a more enjoyable and independent life for a person with ASD.

The development of online games specifically for people in the autism spectrum has infinite possibilities. Communication improvement for adults with ASD is an area of interest that has not been fully explored and with autism diagnosis on a steady increase

(Autismbc, 2018; Autism Canada, 2018), learning communication skills could become a new component to online gaming. Although there are basic learning games for children with ASD, online games specifically designed for the older autism population are limited if non-existent. Research has shown that people with autism commonly enjoy online computer games so if online games can further appeal to people with autism, online game makers could possibly tap into a previously unknown demographic market. This research gives people with high functioning autism a voice to what they want in an online game and how it can help with learning communication skills.

## **Chapter 4. Results**

### **Introduction**

This section begins with a description of the data available for analysis. It also offers the synthesis and interpretation of the participants' responses to the interview questions. The results are then viewed from three different perspectives. First, observations presented during the interviews are discussed. Second, the data is clustered into statements of significant meanings. Exploration of these statements included selected quotes from the participants which added a greater understanding to them. Finally, through the integration of the meanings and patterns of the participants' narratives, four themes emerged. These thematic descriptions clarified the lived experiences of the participants' use of communication during online gaming.

### **Data Available for Analysis**

Data collection began during the summer months of 2019 and concluded once saturation occurred. Saturation was accomplished the following spring with nine participants. Interviews were conducted, recorded, and the narratives were transcribed. The four interviews that occurred through Skype and the one interview that occurred face-to-face had additional data input through the researcher's observations during the interviews. Attention was also given to how the participants spoke during their interviews. The bulk of data, however, was obtained from the participants' narratives through which evolved into themes and, finally, research analysis.

### **Observations (Visual and Auditory)**

It was important to ensure the participants felt comfortable and safe at all times during their interview. Each person with autism is unique and may visually express

themselves through their actions and behaviours (Autism Canada, 2018). During the interviews, the researcher respected all the participants' facial expressions, body posturing, and tone of voice and did not verbally acknowledge any of these changes and instead noted them in an interview journal. Although there were little or no visual emotions shown by any of the participants during their interviews, there was often a change in participants' tone of voice or rate of speech changed as they spoke about something that was of interest or they really liked about online gaming. Excitement was heard in their voices and their voices quickened when they spoke about something important to them, for example when EF spoke about loot boxes or ER describing her favorite Runescape characters.

No participants exhibited any abnormal behaviours which was not surprising because all were high functioning adults with ASD. Four participants, however, chose to not complete their interviews through Skype. Two participants had their interview by phone and two by written (email) form. These four participants expressed difficulty in visually connecting with the researcher. The most shared comments were feelings of anxiety and difficulty in understanding what a person says when watching him speak. Therefore, for these reasons of reduced comfort the researcher agreed to conduct the interviews without Skype.

### **Clustering and Thematizing Invariant Constituents: Essential Themes**

Once the transcripts were coded, the data analysis noticeably moved in a systematic and meaningful way. Information was captured and new clusters of meaning were quickly seen. During this time of discovery, four themes emerged and the storytelling of the data began. The uncovering of themes was a long, arduous task, but



after much scrutiny and continuous exploration of the data four prominent themes were revealed. When describing qualitative research and interviews Yi (2018) describes:

The themes can tell the same story from different perspectives, or several different stories that connect with each other. With great narratives created from the themes, messy qualitative data are now in a meaningful order. (p. 1)

By emphasizing each of the four themes, this research became a journey of disclosure as well as an acknowledgement of specific insight from the lived experiences of each of the participants. An in-depth exploration of these themes produced a phenomenological understanding of the intentionality of the online gamers in this study. Each participant had an unequivocal passion for online gaming which was clearly expressed by their own opinions about online gaming. Some participants shared the same viewpoint and sometimes they had different outlooks. The following themes were derived from the participants' interview transcripts and then were supported by the participants' own narratives:

Theme 1: Transfer of Information

Theme 2: Description of Game Players

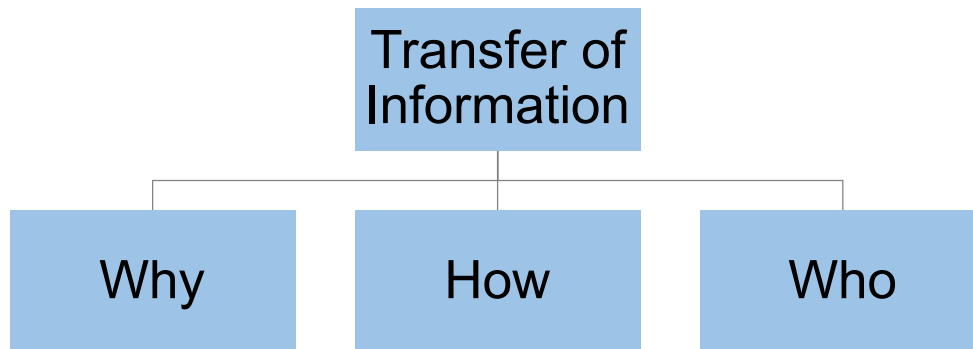
Theme 3: Dislikes

Theme 4: Self-Barriers

### **Theme 1: Transfer of Information**

The first emerging theme explored participants connecting with other online gamers. Online gaming does not need to be a solitary game as when massively multiplayer online role-playing games (MMORPGs) are played, as the name implies, player interaction is often promoted. When presenting the findings relating the

transference of information the analyzed narratives primarily focused on why and who these participants interacted with, in addition to how these interactions occurred. Figure 1 is a visual representation of the interplay between the first theme pertaining to the transfer of information.



*Figure 1: Theme 1*

Eight of the nine participants actively sought other game players. Each game player had different reasons for engaging in communications while playing their game. Gaming was an individual experience for each of these participants, and the choices they made while playing their online game reflected this. Interaction with other game players may have been done for personal reasons while other reasons were directly related to the game itself. There was, however, overlap to why and who a participant engaged with as each reason was directly related to each other.

Game involvement and alliance building was an important aspect in multiplayer online games as gamers usually needed to collaborate in order to advance in the game. Online gaming therefore had the ability to create “opportunities for joint attention and meaningful engagement” (Thorne & Fischer, 2012, p. 5). The following segments of narratives illustrate the use of horizontalization for the exploration of why three participants considered collaboration to be important during an online game.

*... requires a lot of team work to be successful. (GE)*

*The game requires you to join a clan if you want to get anywhere in the game. (GE)*

*It is about teaming up with others and overcoming a goal, to overcome obstacles. (KED)*

*...At some point you are going to have to team up and be nice to others. Eventually you are just going to have to get used to it. This is kind of a necessity and there is nothing to be scared of. (KED)*

*... I had players who I played with regularly depending on the task I was completing. (KM-M)*

Three participants enjoyed interaction with other gamers for reasons different than for game advancement as their game play included a more social experience. Participant narratives included game playing with family and friends. Participants also played online games to meet people and to make friendships with people from all over the world.

*...tend to play with my friends a lot. (EF)*

*I like playing Minecraft with my girlfriend and other people. (KM-NB)*

*Our friends who play... (KM-NB)*

*If you have friends who play you join with them... (MH-F)*

*I play with actual people I can interact with. (MH-F)*

Two participants chose to interact with others while playing online games for both advancement and personal reasons. ER and CB did not limit their reasons for game play.

*...talking to other players can give better results for all involved. (ER)*

*...it much easier for like-minded people to form social groups. (ER)*

*I joined a welcoming and casual clan several years ago. (ER)*

*Everyone works as a team. (CB)*

*People on it will help if you are stuck and not let you just die. They will come and help you. (CB)*

*All people help people and play with people. (CB)*

*This way you have chances to meet people. (CB)*

*My brother and I have actually met some good friend playing this game. (CB)*

All the participants but one actively interacted with other game players. MH-M chose to play the online game on his own.

*I was kinda there living my life, having my own experience and I didn't tend to, I didn't tend to seek out interactions with other people at all.*

*...my natural inclination wouldn't really to say hello to the passerby or anything like that. (MH-M)*

Even though MH-M was a solitary gamer, it did not mean that he would continue being one. Although he did have the opportunity to interact with other gamers while in the study, he was not against engaging with other players in the future depending on the game circumstance.

*I would have not known how to accomplish something or I would have gotten stuck, and then maybe I would have been more inclined, like you know, go on a raid or something like that. I couldn't do that alone, but I didn't really actually find a lot of things that I couldn't just do on my own.*

*Why would I be playing this game with other people rather than playing one of 20 - 30 games that give me that kinda single great experience without having to worry about this other stuff. (MH-M)*

Although GE and KED interacted with other gamers while playing their game they did acknowledge it is not mandatory. GE and KED referenced playing MMORPGs solo.

*You can play solo but you will never grow and many benefits from being in a clan. (GE)*

*You don't have to be friends with anybody. You don't have to go out of your way to interact with somebody. (KED)*

Even though gamer interaction may be an important part of any online game there still needs to be a method to achieve it. Within an online game there are often different ways to speak to other players. Various strategies were therefore utilized to describe how communication with other gamers occurred; some participants communicated within the game itself, others used outside sources. It appeared that it was more common to discuss the exploits of online games by methods not obtained through the game itself. Four participants, EF, ER, KM-NB, MH-F, actively used Discord, a cross-platform chat app specifically designed for gamers, or a Discord type feature to connect with others in their online game. In addition to Discord, KM-NB used Skype and on-line groups, whereas MH-F preferred to use Skype and Messenger Chat. Other communication methods included a third-party voice chat program (ER), Reddit (MH-F), forums (MH-F) or by use of cell phone texts (KM-M).

Player engagement can be an integral part of the game and can allow for easier advancement throughout the game. Gamer behavior often reflected a grouping of similar minded people who choose to work together to achieve a common goal.

*Chat functions exist for general and trade. (MH-F)*

*...a trading system. (EF)*

*You have guild a-chat. (KED)*

*I had players who I played with regularly depending on the task I was completing, for instance, if I was looking to level up my mining or smithing I would find other players who frequented the same mine and server in which I was playing, if I was going on a certain quest I might also find players along the way. (KM-M)*

GE actively engaged with other players, but preferred to interact with people he was familiar with. He preferred not to speak with too many people at once. GE described that he would like to converse with others, but often felt he could not speak with them.

*...you can chat with players as a whole clan/kingdom group or one on one in a private message. I like the private conversations the best. (GE)*

*I often make comments no one reply's to, usually too many trying to talk at once and I want to talk about the game stuff and there off chatting about something so far from the game I can't take part, or don't want to anyhow. Usually it's other people wanting to talk about things not game related that makes it harder for me. I can sometime take part in chat when it's like that but I have to be in a top-notch mood and even as so can only handle it so much. (GE)*

KM-NB followed GE's ideas of interacting with other gamers she knew, but instead preferred to use methods outside the game.

*...looking at a public server that all of the people will be friendly, so that's why I prefer to play in a private server with people I already know. (KM-NB)*

*There are also online groups that people make specifically for playing... (KM-NB)*

The first theme explored the transfer of information that occurs in an online game. The narratives described the participants' efforts at connecting with other people while playing their online game. Each player had their own reasons for connecting with others, but it was common to engage with other gamers to join groups such as clans or teams within the game to move forward in the game. Alliance building allowed the autistic gamers to be part of the gaming community without having to physically meet their gaming friends. They were able to meet other gamers on their own terms as they could now choose to speak to people through written or verbal conversation, with or without a facial or visual component.

## **Theme 2: Description of Game Players**

This theme paints a picture of how the participants perceived the other game players. Participants shared how game players influenced other players as well as the game itself. The focus then shifted to investigating the two types of game players, real players and non-player characters (NPCs). Figure 2 is a visual representation of the

second theme, player descriptions and its division into real game players and non-player characters.

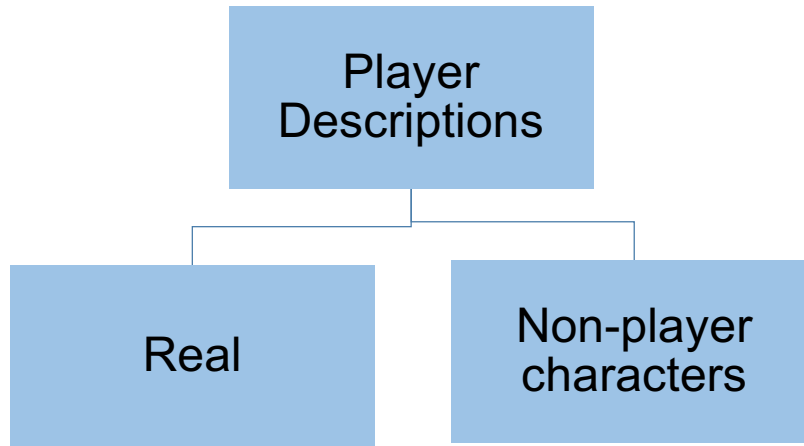


Figure 2: Theme 2

The general consensus appeared to follow the idea that the participants felt they were part of an online community and needed player attachment in order to play the online game. Every participant commented on the congregation of game players and their reason for it. There was no negativity with the idea of becoming a group force and engaging in the game as a team.

*It is a community based game and everyone talks about it and enjoys it. (CB)*

*Very much multiplayer... (CB)*

*...encourages interaction with other players. (EF)*

*...people doing group boss fights. (ER)*

*... requires a lot of team work to be successful at winning events. (GE)*

*...at the end of the day it is a MMO – a massively, multiplayer online game. It is about teaming up with others and overcoming a goal, to overcome obstacles. (KED)*

*I had players who I played with regularly depending on the task I was completing... I would find other players who frequented the same mine and server*

*in which I was playing, if I was going on a certain quest I might also find players along the way. (KM-M)*

*We build worlds together... (KM-NB)*

*...joining a guild. (MH)*

*...where I would have not known how to accomplish something or I would have gotten stuck, and then maybe I would have been more inclined, like you know, go on a raid or something like that. (MH-M)*

When the participants played the massively multiplayer online game a community was often formed. Within this community, however, there were players that disrupted the flow of the game hence making other gamers upset or angry. These disruptions strongly impacted how three participants continued to play their games and sometimes these disruptions bothered the participants enough for them to stop playing the game. There was a definite concern for the negativity that was shown by others in the game.

*Me and my brother gave up playing it for a month because of the updates – there were constant hacks... There are always the people who want to break it. (CB)*

*They do not want to listen to the rules. It brings the reality to the video game and it bounces back out to different people's computers and it does affect their real life. (CB)*

*...there are some people that are 'not nice'. Sometimes they just want to waste time. You kinda have to grow a bit of a thick skin and basically if they want to do that, they can do that. (EF)*

*A try-hard is when somebody goes all out and dominates the match*

*Sometimes try-hards make it not fun. (EF)*

*We build worlds together in private servers, and the privacy encourages me to play this game with them because that means random mean people won't come in to mess with the things we build. (KM-NB)*

Engaging with others was a prominent feature in a MMO. There were usually plenty of other gamers seen while playing the online game so there was a constant ability to interact with them. There were other players in the game, however, they were not real



and generated by the game itself. These non-player characters or NPCS were seen throughout the game. KED had his own definition: *Player characters are the ones that you and other players pilot. They are your avatar.* He went on to say:

*I have met many avatars. It is almost mandatory because you need it and can't progress on your own. The game does not really let you. Later on you can revisit these parts and waltz right through, but when you first get to them you are going to need a team. You can't really avoid it.* (KED)

Npcs were an integral part of the online games as helped with the flow of the game. All participants expected to see them throughout their game and just carried on with their game whenever they saw them.

The second theme described the players in an online game. The narratives divided the player descriptions in terms of real players and the non-player characters in an online game. There was a general consensus that online gaming was, as the game MMO implied, a massively, multiplayer online game which meant online gaming is a community based game that encourages player engagement. The way the participants spoke of the game generated players or the real players demonstrated a genuine feel for how they played their online game. There was often excitement when speaking of the game alliances and achievements the group acquired. This showed a need and want for player interaction.

### **Theme 3: Dislikes**

People who are passionate about something are often the ones who are the first to complain about it when something goes wrong. Online game play should be an entertaining medium, but when the gaming environment changed and was no longer enjoyable, gamers often expressed their dislike with the hope that the game would return to its original form. Even if it was just a simple objection, these gamers certainly voiced

their opinions. The participants' narratives reflected two types of dislikes: the online game and the online gaming industry (seven out of nine participants). Figure 3 is a visual representation of theme 3 dislikes and how the participants isolated their negativity into industry dislikes and dislikes about fellow gamers.

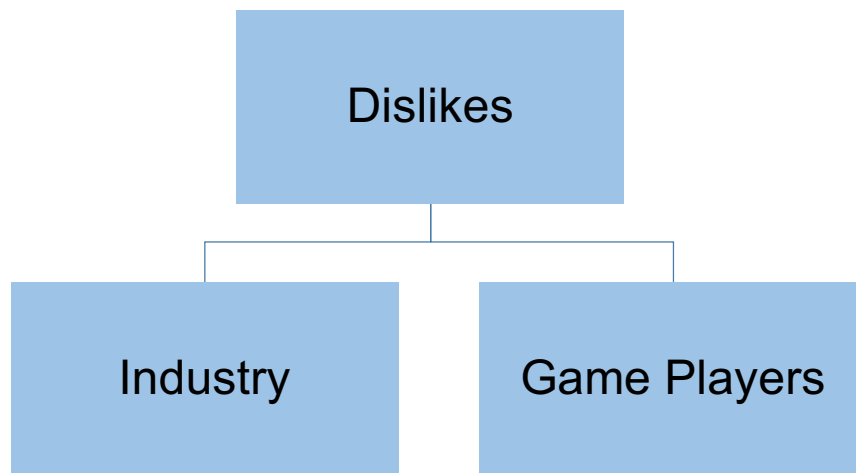


Figure 3: Theme 3

The gaming industry is steadily growing and developing new games. Some of these games, however, are not original and only contain alterations from their original form. It was shown to be frustrating for five of the research participants when the game designers altered or updated their online game. These changes were disruptive for these gamers and caused a distinct dislike for the online gaming industry as some people preferred to play the original game in its entirety.

*I guess it is nice to update the version but I feel that Fortnite should have said here is the old version. (Even Minecraft has done this. There is an old version. They could update but people could still play the original game). This way the people who want to play the original game can. (CB)*

*They have changed the map, completely changed the layout, the graphics. (CB)*

*Less changes to the game. (GE)*

*...developers, Square Enix, got a bit cocky and thought they could do no wrong, it looks really, really pretty and if there is a problem we can patch it later. (KED)*

*I avoided the new player server because people said it would be slow. (MH-F)*

*The current major plot arc has been grinding along at a glacial pace and I'd really like to get the next installment of it, and of other incomplete quest series, sooner rather than later. (ER)*

Three of the participants' narratives also reflected on a dislike about how the online gaming industry continued to generate an increasing revenue. In addition to selling the online game to a consumer, it was not uncommon for online games to have built-in ways to increase their monetary intake; online games often added articles or powers that the player can buy that will supposedly help a player succeed and/or advance in the game. Most games had a method of making money in addition to selling the game to consumers and it was these methods, as told by some of the participants, that have become detrimental to the gamer.

*There are stories of kids stealing their parents credit cards and taking all the money to buy card packs because he wanted this really popular player. Then there has been another thing with a person with a gambling addiction spent lots of money on these cards. (EF)*

*...reduce the cost of playing, this game costs thousands to play. (GE)*

*They add more to the game to often so they can make more money with the big spenders which have spent over 10K on the game. (GE)*

*...more accessible to free to play members since when I played it I wasn't able to access member features of the game. (KM-M)*

The gaming industry is required to follow government rules and regulations. However, there are often questions to how far these regulations should go and if they are strong enough. EF was concerned the government was not doing enough to protect the players.

*Government got involved to think of the kids. The games were supposed to regulate themselves but it never happened. There are games rated E – for everyone but it has loot boxes. Some games have pushed the line, they have plinko, spin the wheel. They have gambling aspects too. (EF)*

*A person with a gambling addiction spent lots of money... This is where the regulations could help – with any of the addiction issues. (EF)*

GE followed EF's opinions and was concerned about the cost of playing an online game and wanted to see safeguards in place for extreme overspending.

*I would also put a restriction on the what size of players those big spenders can hit. (GE)*

People cannot always get along all the time and gamers are no exception. There was often feelings of discord and contention when the non-serious gamers interrupted the serious gamers. There was a clear division between these two types of players which caused conflict to erupt and a dislike for the online game. Five of the participants described how they have been impacted with other players who chose to be disruptive while playing the game.

*There are those who just want to enter the world and break it. The negative people who just want to be the bullies of the world – they are there online and in person. (CB)*

*...has been shut down, it has been hacked. This is probably the worst difficulty. (CB)*

*They do not want to listen to the rules. (CB)*

*Sometimes it is personality based and there are some people that are 'not nice'. Sometimes they just want to waste time. (EF)*

*Sometimes though the team leader does not know what he is doing. (EF)*

*A try hard is when somebody goes all out and dominates the match. If you are on the enemy team they will be killing you so fast. It is sometimes irritating. Sometimes try-hards make it not fun. (EF)*

*Usually it's other people wanting to talk about things not game related that makes it harder for me. (GE)*

*...so new people would come in and they would not have an idea and make a mistake and the old times would get frustrated immediately and say screw this and say I'm gone and then the old timers would complain that no one could ever do it right. (KED)*

*I wish that it was easier to find public servers where random people would agree to be nice and not destroy peoples' buildings or hurt them in the game. (KM-NB)*

Based on the participants' statements about their gaming dislikes, all but one participant had complaints about online gaming. The one participant, MH-M did not have any online game or industry criticisms, but that was not surprising because MH-M is currently a game designer and while in the study he used his professional outlook when playing and analyzing the online game and instead of criticizing the game, he adopted ideas of how he could change or alter it.

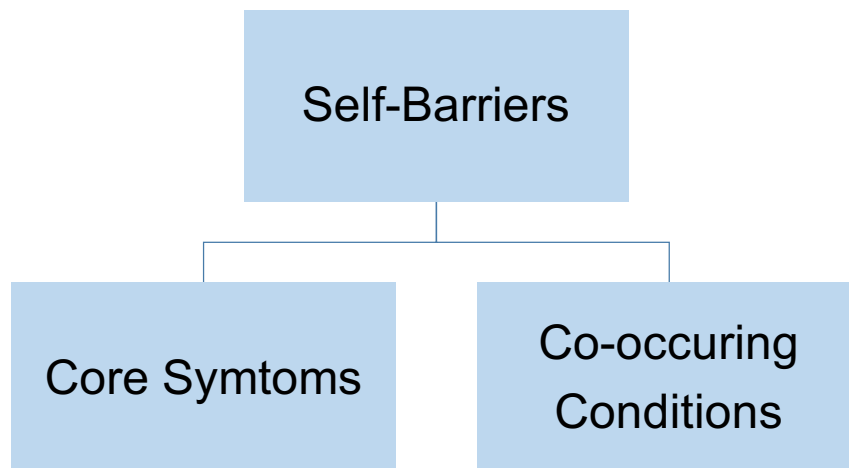
*I tend to think about a little bit more on the systems side, rather than the story side, of the character side... It's just not something that I was naturally inclined to be drawn towards or didn't stand out to me. It was a means to an end more so than anything. (MH-M)*

The third theme described the specific dislikes the participants considered to be issues that need to be addressed within the online game community. Game negativity was expressed in the narratives in two very different ways and was divided into industry dislikes and fellow game player dislikes. These participants felt very strongly about bullying and felt there should be no place for it in online gaming. There was also discord between gamers when serious gamers tried to play an online game with a non-serious gamer. The participants were also frustrated with the continuous changes and updates that occurred with online games, especially when the previous game version was deleted or the previous acquired game inventories were not permitted to be brought into the newer game. Another negativity with the gaming industry was the introduction of loot boxes and microtransactions as a method of increasing their revenues at the expense of the gamer. The narratives explained these transactions as game manipulations that cost the gamer money and believed they may be equated to the act of gambling. Overall, the participants wanted choice in an online game. They did not want the gaming industry to

dictate what they did or did not want. This suggests that the gaming industry should listen to the gamers, as they will voice their opinions if they are asked.

#### **Theme 4: Self-Barriers**

This theme directly involves the participants discussing their personal autism barriers and relating them to their online gaming. All the participants were completely aware of their disability as well as their limitations so their narratives reflected how they personally interacted with the outside world. The participants were all very open and forthcoming with their concerns and how they addressed them. Figure 4 is a visual representation of theme 4, the barriers the participants regularly faced while gaming and then personal references pertaining to the participants' own disability and how online gaming had become a strong component in their lives.



*Figure 4: Theme 4*

CB, for example, was very clear on how her autism impacts her life choices. She completely understands her core autism symptoms as well as the challenges she faces every day, and therefore she uses adaptive behaviours to help her live her life to the fullest. CB thoroughly enjoys online gaming and consequently uses it to her advantage.

*Yes, I play video games but right now I don't enjoy being around people because it gives... my body has such bad anxiety... which leaves me to come back to my video games and the screen. It is just a small thing that grownups do not necessarily understand, it's not like we are ignoring the world but this is a new world that has not been tapped into yet. (CB)*

CB went on to describe how online gaming has benefitted her and why it is important to her. She does not stand behind her autism and has a great way of explaining how she has faced it head on.

*My mom has especially come to understand that people with autism and that is something I have told my friends is that this way your clothes are on and you do not get to meet face to face and they can just come to truly know you. I do not type or say things online that I do not mean so you get actually comfortable with playing games with people. I feel that if you meet people whether you play video games or board games and they don't lie or try to steal or cheat then generally they are a good person when it comes down to it. But if it comes down to it and they are there to help you when together. This is why the online thing has been a benefit to my disabilities, to be able to meet other people. I have gotten to meet others and become friends even people I have met in person. It is important that we all play video games together, like Fortnite and Minecraft. Definitely a benefit for people with autism or anxiety or depression, I can come out of the room with still being in the room kind of thing. (CB)*

KM-M also explained why online gaming is an important element in his life and how he was able to play it to his fullest ability.

*...the game to be easier than other communication as I didn't have to strain in order to read non-verbal cues or tonality as all communication was done via text. (KM-M)*

MH-F played online games for a solid purpose for only her benefit.

*I find these games to be a good coping mechanism for anxiety and sleeplessness. (MH-F)*

EF, on the other hand, focused on the emotionality of online gaming and how he needs to be decreased. He went on to say how the consumer should have a voice and their feedback should be acted upon.

*People can be harsh with their criticism and on the Internet. On the Internet people seem to be more emotional. We need to find a way to take out the constructive criticism that is emotionally fueled. (EF)*

*Sometimes the developers, the ones that create the games, can't handle that and that is why they need a good community manager to take the brunt of it. Harsh or not. Need to filter out the emotional stuff. (EF)*

KED acknowledged that online gaming often needs to be a team effort even when he would rather play the game solo.

*It is a lot of things, but at the end of the day it is a MMO – a massively, multiplayer online game. It is about teaming up with others and overcoming a goal, to overcome obstacles. (KED)*

Having a diagnosis of autism notably impacted five out of the nine participants. The narratives of these five participants demonstrate that they have each confronted their disability and have worked with it. They did not want their disability to limit what they chose to do in their lives.

The final theme was a discussion of the participants' personal autism concerns and their own online game usage. It was found that game usage for the autistic player included reasons that pertained directly to their autism symptoms. Along with varying degrees of social impairment and communication difficulties, some of the people in this study had additional conditions such as anxiety, depression or sleeplessness. These autistic gamers were self-aware of their struggles and often chose to play online games to sooth or lessen these struggles. The information uncovered from the individual perspectives would help improve the use of online games to facilitate communication for people with autism.

### **Word Visualization**

Content analysis can be an important source of information when identifying subjects of interest in a research study. By using the narratives given by the participants,



words were monitored for similarities and patterns. Exploring the textual data also allowed for a more comprehensive explanation of the data. By visualizing the narratives, certain words were pulled out as pertinent fragments of this data since during the interviews it was noted that the participants emphasized certain words for meaning and description. The frequency of the individual words gives insight to their importance. In figure 5, a word cloud was formulated by looking at the word frequency in the narratives.



Figure 5: Word Cloud

There was no surprise when the word *game* and its stemmed words comprised 4.53% of the narratives, followed by *people* at 2.29%, and *playing* at 2.26%. These top three words gave a good representation of the research itself as well as broad understanding of what the participants felt was important to this research. It may appear to be a simple

picture of words, but the use of repetitive words demonstrated an interpretation of the underlying context. This word cloud illuminated the key elements described in the participants' narratives. It also showed that the participants had a connection to the research and their feedback was directly related to this study.

### **Reflection**

Chapter IV focused on the broad experiences of the participants of this study. I was very impressed by each of these individuals and how open and willing they were to tell me about their online gaming experiences. I have learned a lot from these participants. I have always prided myself with being objective and unbiased, but after completing this chapter about participant descriptions and study results, I found that I could be more receptive to others' abilities and remember that no one should ever give up on their wants and dreams. I also found that even within the label of the high functioning autism, these individuals had a wide range of abilities and differences. Each person needed to be observed as a separate individual with their own ambitions and goals. Each person, now and in the future, needs to be able to accomplish their own wishes and not be held back because of their disability. Hard work can pay off for everyone, just as some of these participants have proven.

I want to ensure that there is a clear understanding of verb tense as I have used it during this research study, and this chapter in particular. Age is stated as the number the participant was at the time of their interview. The participants' online gaming habits are the way the people behave and will most likely continue to be. Their online gaming use has not stopped just because this research was completed.

### **Discussion**

The results of this research and the extent to which online gaming can be a communication learning tool are explored in relation to the existing body of literature. The main findings revealed a connection between online gaming and communication. This descriptive phenomenological study produced vivid descriptions of the experience of playing an online game and how and why an autistic person communicates with other gamers.

During the discussion, communication and how and why it is used in an online game as well as the differences noted between men and women is described. The original questions are introduced once again along with answers formulated from the data and its findings. By answering these key questions, the study will gain a greater understanding to using online gaming as communication learning platform. This information can then, possibly, be applied to future studies or be further analyzed by the gaming industry.

### **Self-Awareness vs Preoccupation**

This research confirmed that individuals on the higher end of the spectrum can definitely decide what they think is best for themselves and people need to listen to them. All the participants were open with their disability and wanted to share their story about online gaming. Each participant demonstrated self-awareness (some more than others), was mindful of their disability, and was able to work with it. It was also confirmed that living with autism had not been easy for these participants, but with outside help and information, including from family and autism agencies, they have been able to live a fulfilling life. They wanted the outside world to know that their autism does not define them and is only a small part of who they actually are.

The level of each person's self-awareness corresponded with the high-functioning level of autism each person had. Those with greater self-awareness who discussed their reasons for online gaming demonstrated they were able to adapt their gaming to become a method of monitoring their autism symptoms. They chose to use gaming as a way to relate to the outside world without being completely in it as they were able to recognize what was needed to be done to curb their own anxiety, depression or sleeplessness without the interference of other people's thoughts and feelings. MH-F had the ability to separate her sense of self with her body. It is as if she used her mind to calm her body as it common for her to "play something for about ten hours a day probably with varying degrees of intensity" in order for her to "relax".

Although at times it was difficult, these individuals were able to cope in the outside world, and knowing they were autistic gave them reasons for the choices they have made in their lives. It gave them an understanding of their private thoughts and a willingness to work with their autism. MH-M goes one step further, however, and uses his autism to help him function in the outside world. Online games for MH-M is not about the game and its story, instead, the online game is about the game mechanics and how he "can combine different parts [of the game]". He uses his ability to see and play online games differently as an enhancement to his job as an online game designer.

On the other hand, there were participants who lacked the high self-awareness needed to relate to the world around them. These gamers struggled with everyday choices and often turned to online gaming as a way of life and not a way to cope with life. They may have a personal acknowledgement of their autism but required outside help to ensure their safety and well-being. They often described themselves in terms of

gaming and not with personal traits and inner thoughts. They were fully engrossed with their autism traits and used online gaming to express their identities to others.

Two of the participants spoke about their online gaming usage with considerable enthusiasm and stood out over the entire participant group due to their intense preoccupation with their Internet use. In addition to online gaming, they explored the Internet for all aspects of gaming and its production. Their lives revolved around online games and they regarded online gaming as their everyday job. Online gaming could be considered as part of their identity as their thought processes seemed to be intertwined with the gaming process. They spent the majority of their day playing their online game of choice and seldom engaged in the outside world; instead they made gaming their actual world. Their families acknowledged their child's excessive gaming, but due to these men being of legal age the families felt they were no longer able to address these issues. There was definite concern for their family members, but they felt a lack of control over their family members' choices.

### **Attraction to Online Gaming**

Gamers can have a special appreciation for the online games they choose to play and gamers with autism are no different. Playing online games appears to satisfy basic psychological needs that may not be achieved in the natural world for people in the autism spectrum. Their game play is a source of pleasure and entertainment, however, it is often more than a casual distraction and it has become a significant part of their lives. The general pattern of results suggests there are three basic reasons for playing online gaming for autistic adults: socialization, competition, and soothing their autistic traits.

**Socialization.** People with autism often have limited friends in the outside world (Eaves & Ho, 2008). Online gaming opens a world with fewer barriers, thus allowing easier interaction with others. It was mentioned many times in the narratives that people online were friendlier (CB, ER, KED) with less negativity and swearing (CB). Although bullying was still present in online gaming there were ways to eliminate it, such as by playing the in private mode (KM-NB). People play online games because they enjoy playing the game just like the other game players (MH). This means that people with similar mindsets are drawn to similar online games which therefore makes player engagement easier. For KM-NB and ER social engagement involves building, exploring, and going on game quests with friends. When examining the socialization aspect of online gaming there was a clear distinction between the men and women in this study and how they wanted to engage with other game players. It appeared that the women in this study wanted to play the online game with friends and with people with the same game interests. Data analysis further showed there was a definite social aspect to online gaming for women and their game choices impacted the ability to play in friend groups or in a social community.

**Competition.** Online gaming is often expected to involve competition and winning. MMOs frequently use specific groups of game players to achieve certain goals and allow for quicker advancement in a game. There are different names for these groups: clans, guilds, and teams, but they are all generally the same with the uniform outcome of wanting to win and/or beat the other side. All the participants in this study acknowledged this possible game integration as well as possible battles or raids, but generally it was the male gamers who wanted to play their online game with this

intensity. For EF, GE, and KED extreme game battles were a vital element of the game, whereas CB enjoyed more simplistic game battles. Utilizing these targeted groups for game advancement is an additional method the online game uses for game engagement as “achievement entailed advancing the game through leveling up, acquiring status, gaining the ability to challenge and dominate others” (Chen, Oliffe, & Kelly, 2018, p. 1154).

Game advancement through competition can be seen by the acquirement and use of game inventory. Inventory can be increased by trading and bargaining as well as progressing and finishing quests. Trading systems and stores often exist within the game (EF, CB, MH-F) and quests are played (ER) for progressing through the game at a quicker rate than other game players. Battles or mini-games also occur where objects or tools are attained or a player dies in battle which causes him to start the game over at an already completed spot in the game (ER, GE, KM-M). How a player chooses to progress in a game is a personal choice with online games offering various ways to achieve it.

**Soothe Personal Autistic Traits.** All the participants had stereotypical traits of autism, but in varying degrees. They each acknowledged that communication with others was an element of their autism they needed to improve on. As with socialization, online gaming allowed them to be in a virtual world with fewer barriers. Working with a screen permitted the participants to play the online games without needing to read non-verbal cues or tonality (KM-M). The data further supported that the participants wanted to engage with other gamers, but with too much outside noise or stimuli communication became difficult. Therefore, as a method of lowering these difficulties, many of the participants played their online games in privacy mode in order to ensure only familiar

people played in their game. MH-M also had an even easier strategy for solving any communication issues as he chose not to communicate with anyone while gaming.

Along with communication difficulties, autism characteristics often include anxiety and restlessness. Results of this research also showed that it was common for participants to rely on online gaming to manage the severity of their autism symptoms. MH-F uses online games to calm her thoughts and with cope with her anxiety, whereas KM-NB uses online games to relax body and mind. The participants were self-aware of their autism and their own difficulties so they were able to use online gaming as a way to decrease their own struggles with autism. CB describes how playing online games can help with anxiety and depression and goes on to say that she “come(s) out of the room with still being in the room kind of thing.” CB knows she has a difficult time physically interacting with people, but when she plays an online game she is able to meet other players, some of which she calls her friends. CB, as well as other participants therefore use online gaming as coping mechanisms to be able to feel like someone without a disability.

### **Gender Differences (Binary)**

Although online gaming is enjoyed by all gamers, gamers often have specific games they prefer to play. There are many popular MMOs available to the public, but this research suggested that although autistic adults may be willing to try various online games they usually go back to the game with which they are most familiar. The online gaming environment offers gratification to the autistic gamer and their specific game choices appear to relate with their social identity. These online games have become an integral part of these participants' lives and it seems as if each of them has a relationship



with their online gaming experience. They spend an immense amount of time playing online games and as game enjoyment increases so does their game play time. While playing their game, they also have an unequivocal awareness of their game, and their response is complete game immersion. It is this motivation that allows these gamers to actively engage in online gaming.

Online gaming is often assumed to be divided by gender with men being the more common player (Dong, Wang, Du, & Potenza, 2018). In this research differences were observed between the sexes and these differences align with gender stereotypes. Although each person was strongly motivated to continue their game play, the game they chose appeared to be contingent on their gender. The results demonstrated that the autistic women tended to be involved with games with a social undertone. In other words, they often sought out other players to interact and play the game with. It was also seen that this game interaction had grown into friendships within the game where they actively looked for particular players while playing the game. It was also noted that one participant (CB) had even personalized the game further by becoming friends with another female game player both online and in-person.

Gender roles were further demonstrated by the preferred games the women commonly chose. These online games were generally not as disruptive and violent as games chosen by the men gamers. The women preferred to play fantasy online games that contained adventures or quests with the ability to accomplish goals and objectives. Games that were open-ended with a focus on what each game player desired was an important aspect for most women as they wanted choices within the game itself. New

and changing game worlds that had a focus on exploration, building, and crafting, were exciting elements that women enjoyed.

With this in mind, game environments that were randomly selected whenever a new game was loaded brought in a personal touch for each player. Game worlds that offered something different for everyone, instead of one static game that is the same for all players, was a game feature that stood out for women.

Women often sought out online games with easier game management. For CB, simplicity was important as she described how “Runescape has 40 different buttons... whereas Fortnite has just walking, picking... That’s it”. This demonstrates the importance for the mechanics of these online games to be comprised of less detailed player movement. These games may be considered simpler in nature, yet they still evoked player creativity and resourcefulness. The idea of fun game playing for women therefore commonly included less complicated intricacies with simpler button function with far less violence and killings. MH-F goes on to say how she “usually just let(s) the game almost run itself”. These games may also be considered to be more casual and may not be about winning as sometimes game playing can be about passing the time and relaxing.

Results differed when looking at the autistic men in this study. The most prominent difference was the choice of fast paced, strategy-based online games. Game engagement for men did not follow a social pattern as engagement more likely was about random teams and conquering the other gaming groups. The men participants, EF, GE, and KED enjoyed the battles and conquests between clans within the study’s suggested games (*Runescape, World of Warcraft, and Minecraft*), and even went so far as to describe additional battle games such as *Warframe, Final Fantasy 14, and Fortnite*.

These additional action filled games offered players the ability to overcome challenges by various physical means. They also emphasized skill-based objectives that embraced elements such as reaction time and hand-eye coordination. All these online games could simply be described as battle and fighting games in which the player controlled the character or avatar during the game and especially during combat. These were all fast paced games that offered instant gratification with their epic battles and their ability to offer other distractions and rewarding tasks.

### **Gender Fluidity**

At initial examination, it was thought to place (KM-NB) into the gender category they were born into, but upon further analysis this decision was not as identifiable as first thought. [Henceforth, this individual will be referred to as *they* or *their*.] Identity politics is something that needs to be addressed as this non-binary individual did not fit in either the male or female category as a deeper examination into their game play took place. This person followed and lived with the appreciation of fluidity where male and female gender roles did not exist and, remarkably, the results of this research also supported fluidity in relation to this non-binary individual as a gamer. For example, there was no question that online gaming took on a social role as online gaming involved playing intricate online games with friends and communicating in whatever platform worked, such as Discord or Skype. This demonstrated that this individual was willing to expand their online game usage to include communication tools not built into the game itself. They conscientiously remained close to their game friends, but still actively sought out various game boards to help game advancement. In addition, this individual chose to go one step further and play the game in private settings or servers to ensure there was less

outside interference. Game playing was thought to be about game growth and winning that should be played with friends and not strangers. They spend a significant amount of time playing their online game which overlaps the game genre of exploration with various epic battles. They also actively spoke out about their online gaming experiences and would like to explore gaming further if it were not for toxic gamers who potentially could destroy or ruin the game. Thus, it appeared they were a strong person with clear boundaries and opinions. This individual chose to walk the line between gender roles while engaging in online games; they were very absorbed in their gaming activities inside and outside the game but would only interact with people they already knew. The idea to expand their gaming to include additional people was definitely thought as a possibility but needed to be acted upon.

### **Requirements for Target Audiences**

The results of this research indicate that online gaming offers the possibility to improve communication skills for people with autism. The key aspects of a game can help support the learning aspect of how a person communicates with others. There are distinct opinions on what features of an online game positively influence the building of communication skills. Game choices have an impact on learning communication skills and different game characteristics appeal to different people. There are different genres of online games and each type of game has different motives for in-game communications. Therefore, when a game is in the development phase the designers need to know who the target audience is.

Women in this study commonly focus on the social aspect of an online game which means they require a game that is welcoming and inviting. They require online

games that promote a connection between other players. Key elements include searching and exploring through virtual environments. Players need to be able to work together to accomplish simple tasks and achieve goals as well as to advance in the game. By working together there would be a steady requirement to communicate with other players. Ability to meet new players while moving through the game is a key element to engagement and therefore the game needs to be ongoing and ever-changing. These gamers are often thought to have similar likes and dislikes so possible friendships and social acceptance could occur. In other words, for a woman with autism the online game needs to have a steady interaction with other players so they can feel welcomed and a necessary component of the game.

Autistic men, on the other hand, have very different gaming behaviours and therefore the features they would like to see in an online game that could aid in their communication are different as well. Autistic men do like to play online games in groups but not for the same reasons as the autistic women in this study. The men participants highlight action and a fast moving game as the main features they want to see in an online game. Men often thrive on building armies and defeating live opponents so interaction revolves around competition and winning. Communication with other players is necessary to ensure teams are formed and battles occur. Without group discussions about strategy and achievement patterns these simulation games would not be as competitive in nature.

### **Reflection**

This was an intriguing chapter for me as I did not know how the results would initially be answered. I wanted this chapter to flow with a discussion of the results with

openness and respect for the participants. I also wanted the answers to be concise, yet have the ability to be integrated into future studies. I wanted the wording of this chapter to reflect that when speaking about the study it was only written in past tense when describing the received data and its analysis, but any results are described in the present tense because it was about online gaming and online gaming has never stopped for these participants and they continue to be autistic gamers.

I initially generated a frequency word cloud in my NVivo platform as a fun and interesting way to visualize the participants' narratives. It was done as a way of exploring the NVivo capabilities. However, upon seeing this word cloud, I considered it could enhance my research as means to bring text to life. In other words, I just liked it.

### **Summary**

Previous chapters involved the description and collection of data. Chapter IV begins with a comprehensive overview of the essential themes that emerged from the data. This chapter describe specific patterns of meaning from participants' general online gaming experiences, as identified from the participants' narratives. Through their narratives, a deeper understanding of each was discovered along with the knowledge that online gaming played an important role in these people's lives. They all felt a connection to online gaming and sense of belonging towards the online gaming community and although the study revealed that participants had varying degrees of enthusiasm when playing online games, they all thrived on game progression and achievement. There were four distinct themes recognized in this research: transfer of information, player descriptions, dislikes, and self-barriers. Through each voice, the participants described their lived experiences and shared how they connected to online gaming.

Chapter IV continues with the analyzation of the data. The analyzation involves the assimilation of the data into the final results, and discussions of the findings were explored in relation to the existing data. This chapter positions the research within a broader body of knowledge of how people with ASD experience online gaming as a communication learning tool. There was also a brief discussion on the balance of words that were used by the participants as a way of signifying the importance of word choice.

The results presented in this chapter illustrate rich descriptions and explanations of communication and online game usage. A synthesis of the findings was achieved and all the research questions were effectively answered, and therefore, the overall objective of the study was fulfilled.

In the final chapter of this thesis, conclusions that are drawn from this study will be considered to be working findings that require further study. Limitations will be discussed and suggestions for future research are explored. The thesis ends with my final reflections and closing comments.

## **Chapter 5. Conclusion**

### **Introduction**

This final chapter begins with a summary of the research followed by a review and evaluation of the research questions presented in this study. I also offer my last reflection where I examine the entire research process from my perspective. I conclude my thesis with closing remarks which encompasses an appreciation for the people who chose to be a part of my study and wanted to help other people with ASD.

Online gaming presents new opportunities for people with autism to learn communication skills through online gaming. Research literature, as shown in Chapter II, demonstrated there is a growing number of people with ASD entering and participating in online gaming. This study goes on to examine how communication, a common difficulty for people with ASD, can be adapted and used to help people with autism engage with other gamers. This final chapter explores the implications of the research findings and how they can be applied to the gaming community as well as to future studies.

Online gaming is a multibillion dollar business and by linking autistic gamers to online games that can act as tools for acquiring and practicing new skills, another dimension to online gaming can be established. By examining how people with autism use communication in an online game, online game developers and the gaming community can work together to formulate specific online games that are both fun and have a learning component to them. People with autism can become a demographic that online game developers can tap into and add to their already popular and growing industry.

### **Overview of Study**



This phenomenological research highlights the importance of using communication in an online game from the perspective of adults with autism. Phenomenology can be described as an attempt to “understand the essence of a phenomenon from the perspective of the participants who have experienced it” (Eddles-Hirsch, 2015, p. 251). This study contributes to the literature by suggesting that high functioning adults with autism can easily be under-estimated to their abilities and self-awareness of their disability. It further suggests how and why people with ASD use communication in an online game. By applying these propositions, educators have in-depth knowledge about how online gaming can assist people with ASD to increase their communication skills. This research also reveals to game developers that there is a specific population, autistic adults, that could benefit and learn from online games.

### **Review of Research Questions**

The purpose of this study was to explore the lived experiences of learning communication skills in online gaming for people with ASD. The main research question encompasses the entire research study.

- *How do people with HFA describe their experience of learning communication skills with the use of MMO online games?*

This question was about the participants as it probes the communication skills they learned and used through online gaming. The participants were then asked to describe their experiences with learning. This central question was divided into two sub-questions.

- *What are the features of the MMO online games that people with HFA believe to positively influence communication skill building?*

- *What are the features of the MMO online games that people with HFA believe to negatively influence communication skill building?*

The aim of these two sub-questions was about using an online game as a communication learning tool. By answering these research questions, a plethora of information provided a strong foundation to what a person with HFA requires in an online game to stay engaged and to improve their communication skills. These answers go beyond the words on this paper as the information can be used to help influence the communication learning process for people in the autism spectrum.

Beginning with the two sub-questions and the information given, the main question can be answered in a clear, concise manner. These two answers can help identify important details of how people with autism interact and engage with online games. Online gaming is an activity that offers the option to engage with more than one player at a time as the name MMORPG (massively multiplayer online role playing game) implies and it can be enjoyed by countless people anywhere in the world with the use of the internet. The game's virtual world evolves as a player moves through the game.

The answers to the research questions are not as simple as initially thought because the answers are dependent on a number of factors. First, people with autism often have a special connection to online games (Mazurek et al., 2015). This means that people with ASD often are already familiar with online games and have often adapted their game play to be a part of their everyday life, which the participants of this study have all acknowledged. Second, in this study most participants can be considered to be millennials or slightly younger which means they are familiar with technology and commonly embrace the digital world. They have been born into a realm of fast growing

technical devices and environments. This age group is already naturally drawn to having multiple technological devices and constant internet access. Finally, features of an online game cannot even be addressed until the commonality of accessibility of technology is available. In other words, playing an online game requires that a computer and access to Internet be available.

### **Answering the Research Questions**

During a review of the lived experiences for this study it was noted that all the participants were very familiar with online games and had specific games they preferred to play. They had all played the suggested games for the research, but often described their experiences from both the suggested games and their preferred games. Online gaming was an activity that had been a part of the participants' lives for a substantial amount of time, typically over ten years. All participants, but one, utilized some form of communication while playing their chosen game and although for different reasons they would not have been able to play their game to its fullest ability without it. Communication with other players strengthened the participants' ability to be a part of a community with similar likes and ideas and often produced sources of support within the game.

The first sub-question is as follows:

- *What are the features of the online games that people with ASD believe to positively influence communication skill building?*

1. Social networks are formed when playing multiplayer online games. It is easier to speak to people with similar interests such as MMOs. It allows for the formation of personal relationships which makes it easier to share communication with others. People

with ASD learn what is acceptable or nonacceptable when communicating in their network.

2. People are encouraged to communicate with others while playing a MMO. If a player wants to advance in the online game they need to team up with another player(s). People with ASD learn non-personal communication skills where communication is conducted for a game intended purpose. Negotiating and the sharing of ideas is often required when playing MMOs.

3. Multiplayer online games can allow people with autism to talk to other gamers in a more abstract, less stressful environment. When playing an online game there is no eye contact or social responsiveness required. Unusual behaviours or anxiety cannot be seen and sensory input can be regulated.

The second sub-question is as follows:

- *What are the features of the online games that people with ASD believe to negatively influence communication skill building?*

1. The gaming platform is an important communication factor as cross-platform compatibility is needed to ensure that all game communication is possible for everyone to play on the same server. This allows the game to run identically on different platforms, consoles or mobile devices, thus expanding the gaming community. The increase in the number of gamers playing one online game translated into more engagement opportunities with interaction and speaking becoming more popular.

2. Outside sources are often required to communicate with other gamers while playing an online game. Playing in real time with other gamers all over the world demands the ability to communicate with them. However, in an online game communication usually

occurs through a chat box or in-game microphone. Chat box communication is usually completed in written form which is a positive attribute for people with autism.

3. Autistic gamers, however, do not always like to use these built-in game communication processes due to privacy concerns. Privacy can be a viable issue because any person playing the game can enter the conversation unless the game program is configured in a certain way to block unwanted players. It was suggested that chat interface needed to be simplified as there are often too many buttons to control what the chat box displayed. Bullying and harassment can also occur when using built-in game communication. Due to these game inadequacies, gaming communities commonly use third party platforms to communicate with other players. Discord, Skype, and TeamSpeak are examples of voice chat tools that can be downloaded and used by players. These tools are made specifically for communication with others and help gamers coordinate game play.

4. Outside influences are obstacles that people with autism often need to endure while playing an online game. This occurs when the game company asks for money through loot boxes and microtransactions which can be considered to be exploitative purchasing systems. Communication is usually thought of occurring person to person, but in this case of game dynamics it is more of the online game speaking to the gamer. These in-game purchasing systems are often considered to be an abusive “design strategy that might contribute to higher risk consumer behavior” (King et al., 2019, p. 131). The more abusive loot box strategies are associated with games that do not require a fee or subscription (C. Griffin, personal communication, April 5, 2020). Although loot boxes are not required for use in a game, they do enhance the game by offering rewards and

helping a player level up for a monetary cost. The games encourage players to invest in these ‘rewards’ to make the game more fun and game companies are profiting at an alarming rate from these purchases. These transactions bring a negative element to online gaming which included a focus on online gambling. Questions arise when loot boxes are discussed in online gaming and governments around the world are considering if gambling laws need to be enforced (Liu, 2019). Loot boxes and the psychology behind them is a trending topic at this time and the enforcement of banning them continues to be considered by countries all over the world.

The answers provided from the two sub-questions help introduce the main question:

- *How do people with ASD describe their experience of learning communication skills with the use of online games?*

1. Communicating with other online game players allows the autistic player to learn proper dialogue etiquette. The autistic gamer is often able to learn communication social norms pertaining first to online gaming, then possibly for some people with autism, to evolve into social relationships. They are able to learn proper communication skills both in written form or verbal form depending on the game player’s choice.
2. The visual component of communication (eye contact, facial expressions, gestures) is removed when playing an online game which can help to reduce anxiety and stimulation levels for high functioning people with autism. Without seeing the other gamer, the player with autism can concentrate on only speaking with another person.
3. The verbal component of communication (pitch, tone, articulation) is reduced or removed depending on what the autistic game player chooses. This means that

understanding or deciphering a conversation while playing the online game is much easier for the autistic player.

4. People with autism often have sensory processing issues to loud sounds or light intensity so playing an online game allows a person with autism to control volume and the brightness of the screen. Lowering sensitivity levels allow as person with autism concentrate on the game, and hence the player communication required for game play.
5. Development of inner speech is promoted during online gaming. The results suggest that people with autism are able to plan future game moves in their head which, in turn, helps them practice and develop verbal interactions with other gamers.
6. Verbal problem solving may be enhanced by playing online games. By working together and discussing with other game players what needs to be accomplished or how something needs to be completed, a person with autism uses and practices their language skills.
7. People with autism, especially high functioning autism, often know they have a disability, and hence acknowledge they are different from most people. Playing an online game allows the autistic gamer to be similar to other gamers without their disability being a prominent feature. Communication becomes easier with fewer barriers for the person with autism with the above propositions.

Overall, the findings of this research indicate that online gaming can be a useful tool for communicating with other people. Communicating with other gamers or even the non-player characters serve a basic need for the study participants. Communication is a big part of the online games; socialization including relationship building, team

building, problem solving, and strategic game planning are all intricate game qualities that are enhanced by gamer engagement.

### **Limitations of this Study**

Although this study used various strategies to minimize the limitations, there are additional points that need to be acknowledged. These limitations could not be anticipated at the beginning of the study, but when these problems occurred they were addressed and then became an integral part of the study.

The main limitation of this study was the recruitment of the participants. I originally thought I would be able to post my recruitment poster on two Canadian autism agency websites and receive numerous participant requests. I was wrong. I did, however, receive my first participant quickly as well as an email of interest, but then all interest stopped for several weeks. When I finally thought I had five people wanting to be a part of this study, which is the minimum number of participants I needed to complete my study, I had two people drop out of the study. Again, I needed more participants, so I decided to expand my recruitment possibilities and I contacted additional autism agencies to post my recruitment poster. All agencies I spoke to were very receptive to my research and were willing to help me out. Over the next six months I received six more participants through the postings on autism agency websites and two more participants by word of mouth. In the end, I had nine participants and the participant numbers exceeded the amount needed for my study.

One more limitation needed to be addressed. All the data was received through the interview questions, but not all interviews occurred through Skype as originally planned. To ensure the participants were comfortable and had no surprises, the



participants each received the interview questions prior to answering them. During the study, however, a few of the participants expressed a concern about the visual aspect of Skype and verbally communicating with a stranger. They still wanted to complete the study so these interviews were conducted by phone or in written form through the Internet. This study attempted to avoid increasing a participant's anxiety or add unnecessary stress so if any person expressed a communication concern these options were then offered. Communication deficits, especially in a social manner, are considered a typical autism trait, so knowingly provoking this trait was thought to be unacceptable for this study.

### **Suggestions for Future Research**

**Transferability to Non-Autistic Players.** This research study details how adults with autism relate to and utilize the exchange of communication in an online game. There is still, however, a question that was not originally asked, but still should be explored: *Does it make any difference if a person is autistic or not when speaking of online gaming as a communication learning tool?* The results of this research are directed at high functioning autistic individuals, but there is a possibility it can be useful for people without ASD in some instances. Autism is a spectrum disability as there is a wide range of conditions associated with it. People on the higher end of the spectrum can be difficult to diagnose as they often “present a high psychosocial adjustment with regard to independent living, educational status, and partnerships” (Lehnhardt et al., 2011, p. 88). This can easily allow for this study's results to overlap for people without autism. However, when looking at the reasons for playing online games and communicating with others in the game there is one study example that stands out solely for an autistic person

and that is the idea of *soothing autistic traits*, that is, playing the game soothes traits such as anxiety. The people in this study were self-aware of their autism and some of them were able to cope with their personal autistic symptoms, such as sleeplessness or depression by playing an online game. Other reasons for playing an online game, such as *socialization* and *competition* are common motives for interaction between all gamers (Paul, Jensen, Wong, & Khong, 2008). Online autistic gamers may have their own rationale for playing online games, but other gamers can share similar reasons for their online game usage.

**Gender and Online Gaming.** The world is no longer black and white and research needs to reflect this. Gender is a research topic within itself, but in context of this research gender includes male, female, and non-binary. This research demonstrated there were clear differences between male and female participants in their online game and communication use, while the non-binary individual could fit into either category. Future research could look into this further and see if non-binary individuals can become a new focus to online gaming and if game developers have a new market to explore.

**Loot Boxes.** This study only touches on this subject, but there is so much more that needs to be learned about implications of loot boxes in a game (Griffiths, 2018). Loot boxes offer game players “gifts” or possible game advancement tools for a price. They are designed to be enticing and make the player want to purchase the item. Loot boxes are often seen as additional or unforeseen costs to the gamer. This research revealed that there should be safeguards put into place if the game player is unable to make appropriate choices.

An important question is: Are loot boxes a form of gambling? This a current hot topic debate as some countries say “yes”, while other countries say “no”. Countries such as Belgium and the Netherlands have banned loot boxes, whereas many other European countries are investigating this threat.

**Continuation of this Research.** This research has shown that playing online games facilitates communication for people with autism. It has allowed autistic gamers to be part of the gaming community without their disability being apparent. When playing an online game, it is the player and game that comes first instead the scenario of an autistic person playing a game. With this in mind, future research could examine how to bridge the communication in an online game into communicating within society. As well, further inquiry could examine more closely which attributes of MMOs and MMORPGs are more and less effective for developing communication skills among individuals with ASD, including HFA.

### **Final Reflection**

In this final reflection, I look back on my Master graduate studies as a whole and this research in particular. With more than twenty-five years of experience in the disability sector, which began after my first undergrad (BA) in psychology and then my second undergrad (BSc) in biology/nutrition, I have had many ideas and questions I wanted to address in my research. I have worked in numerous capacities in the mental health and intellectual disability fields so my research topic is close to my heart. I wanted to give people with autism a voice and to complete a study by using their own words. I have heard too many times of a friend or family member speak for their loved one and decide what they think is best for him or her. Although families commonly want what is

best for their loved one, no one knows better than the person himself. I therefore chose to complete my research by using the descriptive phenomenological method in order to receive first-hand accounts of a phenomenon. I wanted the person with the disability to make all their own choices and to describe their own lived experiences about their online game use.

As I progressed through the MEd program, the courses I took and the papers I wrote became opportunities to narrow my research ideas. The people I have met during this entire process have been remarkable. I could not have gone through it without them and I now have people from this program I call my friends.

Reflecting back on my journey I found that completing my thesis was a longer process than I first expected, but I would not hesitate to do it again. There were so many more required details than I ever knew, yet it all seemed to come together. Learning the ins and outs of research has been a new exciting experience. I have had a number of memorable moments while completing my thesis of which one I would like to share. The one moment that stands out the most to me occurred when I contacted the participants to ask if they wanted to add their own personal descriptions to the study. Most of the participants ask if I was planning any additional research studies about autism they would be like be a part of them. They asked me to keep their name and contact information if further research was going to happen. It really showed me how good these people were and how they wanted to help other autistic individuals who could not speak for themselves. These people made me feel that I wrote something worthwhile that has the potential to help other people in a way (communication) that could benefit the lives of people with ASD.

**Closing Remarks**

This study provided an in-depth analysis and insight to communication engagement and online gaming from the perspective of the autistic adult. The findings of this qualitative, descriptive phenomenological research project highlighted the perplexity of autism and how even people on the higher end of the spectrum have great diversity in their autism traits. The significance of this research has been discussed at various points in the thesis and the qualitative evidence confirms the role of player engagement in online games can be a communication learning tool.

Much can be learned by the lived experiences of this study's participants and their online game usage. The participants displayed a powerful need to play online games and by examining how these participants chose to engage with other gamers, additional communication skills can be learned and passed on to other autistic people.

While there is significant research about children and online gaming, then slightly less research about children with ASD and online gaming, there are even fewer studies about autistic adults and online gaming. This research can help bridge this gap and introduce online gaming as a communication learning tool in the online learning environment.

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**Appendix A****REB Approval Notification****CERTIFICATION OF ETHICAL APPROVAL**

The Athabasca University Research Ethics Board (AUREB) has reviewed and approved the research project noted below. The AUREB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and Athabasca University Policy and Procedures.

**Ethics File No.: 23267**

**Principal Investigator:**

Mrs. Gaylyne Archibald, Graduate Student  
Centre for Distance Education\Master of Education in Distance Education

**Supervisor:**

Dr. Cynthia Blodgett-Griffin (Supervisor)

**Project Title:**

How People with ASD Experience and Understand Online Gaming as a  
Communication Learning Platform: A Phenomenological Approach

**Effective Date:** April 04, 2019

**Expiry Date:** April 03, 2020

**Restrictions:**

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete (*i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable)*) or the research is terminated.

**Approved by:**

**Date:** April 4, 2019

Connie Blomgren, Chair

Centre for Distance Education, Departmental Ethics Review Committee

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**Athabasca University Research Ethics Board**

**University Research Services, Research Centre**

**1 University Drive, Athabasca AB Canada T9S 3A3**

**E-mail rebsec@athabascau.ca**

**Telephone: 780.675.6718**



## Appendix B

### Recruitment Poster

#### **PARTICIPANTS NEEDED FOR A MASTERS THESIS RESEARCH IN**

HOW PEOPLE WITH ASD EXPERIENCE AND UNDERSTAND ONLINE GAMING AS A  
COMMUNICATION LEARNING PLATFORM

I am looking for volunteers with high functioning autism to take part in a study of  
learning communication skills through online gaming.

As a participant in this study, you would be asked to:

Play a commercial multiplayer online game and then participate in an interview via  
Skype

Your participation is **entirely voluntary** and the interview will take approximately 15 to  
30 minutes of your time. Time to play the online game will depend on how much time  
you choose to play the online game. By participating in this study you will help to  
describe what you want in an online game and how the online game can be used as a  
communication learning tool.

To learn more about this study, or to participate in this study,  
please contact:

#### **Principal Investigator:**

Gaylyne Archibald, *Masters of Education student, Athabasca University*  
Email: [gfarchibald@shaw.ca](mailto:gfarchibald@shaw.ca)

This study is supervised by: Dr. Cynthia Blodgett-Griffin [[cynthiablodgettau@gmail.com](mailto:cynthiablodgettau@gmail.com)]

**This study has been reviewed by the Athabasca University Research Ethics Board.**

## **Appendix C**

### **Informed Consent to Participate in a Research Study**

Research project title: How People with ASD Experience and Understand Online Gaming as a Communication Learning Platform

Research investigator: Gaylyne Archibald

Thesis supervisor: Dr. Cynthia Blodgett-Griffin

Research Participants name:

The interview will take approximately 30 minutes. We don't anticipate that there are any risks associated with your participation, and you have the right to stop the interview or withdraw from the research at any time with no consequences of any sort.

Thank you for agreeing to be interviewed as part of this research project. Ethical procedures for academic research undertaken from Athabasca University requires that interviewees explicitly agree to being interviewed and how the information contained in their interview will be used. This consent form is necessary to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Would you therefore read the accompanying information sheet and then sign this form to certify that you understand the following statements:

- The interview will be recorded and a transcript will be produced
- You will be sent the transcript and given the opportunity to correct any factual errors
- Access to the interview transcript will be analysed by Gaylyne Archibald as the researcher investigator

- Any summary interview content or direct quotations from the interview will be anonymized so that you cannot be identified
- Any variation of the conditions above will only occur with your further approval

By signing this form, I agree that;

1. I am voluntarily taking part in this project. I understand that I do not have to take part and I can stop the interview at any time
2. The transcribed interview may be used as described above
3. I have read the information sheet
4. I do not expect to receive any payment for my participation
5. I can request a copy of the transcript of my interview and make edits I feel necessary.
6. I have been able to ask any questions I may have and I understand that I can contact the researcher with any questions I may have in the future.
7. A contact person and contact number will be given to the researcher as a precaution if assistance is required.

Name: \_\_\_\_\_

Phone/Email: \_\_\_\_\_

If you have any questions about this study or would like additional information to assist you in reaching a decision about participation, please feel free to contact Gaylyne Archibald by email at [gfarchibald@shaw.ca](mailto:gfarchibald@shaw.ca) or my supervisor, Dr. Cynthia Blodgett-Griffin at [cynthiablodgettau@gmail.com](mailto:cynthiablodgettau@gmail.com) .

**Interview Consent Signature Form**

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**Participant's Printed Name** **Date**

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**Participant's Signature** **Date**

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**Researcher's Signature** **Date**

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**Supervisor** **Date**

## **Appendix D**

### **Semi-Structured Interview Guide**

Research Question 1

**Q1:** How would you describe the online game you played?

Research Question 2

**Q2:** Tell me more about the characters you met in the online game.

Research Question 3

**Q3:** What game features helped or encouraged you to meet other game players?

Research Question 4

**Q4:** While you were playing the online game, was there anything that made it difficult to communicate with other game players?

Research Question 5

**Q5:** If you could change anything in the online game you played, what would it be?

## Appendix E



### CERTIFICATION OF ETHICAL APPROVAL

The Athabasca University Research Ethics Board (AUREB) has reviewed and approved the research project noted below. The AUREB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and Athabasca University Policy and Procedures.

**Ethics File No.:** 23267

**Principal Investigator:**

Mrs. Gaylyne Archibald, Graduate Student  
Centre for Distance Education\Master of Education in Distance Education

**Supervisor:**

Dr. Cynthia Blodgett-Griffin (Supervisor)

**Project Title:**

How People with ASD Experience and Understand Online Gaming as a Communication Learning Platform: A Phenomenological Approach

**Effective Date:** April 04, 2019

**Expiry Date:** April 03, 2020

**Restrictions:**

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete (*i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable)*) or the research is terminated.

**Approved by:**

**Date:** April 4, 2019

Connie Blomgren, Chair  
Centre for Distance Education, Departmental Ethics Review Committee

## Appendix F



### CERTIFICATION OF ETHICAL APPROVAL - RENEWAL

The Athabasca University Research Ethics Board (REB) has reviewed and approved the research project noted below. The REB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) and Athabasca University Policy and Procedures.

**Ethics File No.:** 23267

**Principal Investigator:**

Mrs. Gaylyne Archibald, Graduate Student  
Faculty of Humanities & Social Sciences/Master of Education in Distance Education (MEd)

**Supervisor:**

Dr. Cynthia Blodgett-Griffin (Supervisor)

**Project Title:**

How People with ASD Experience and Understand Online Gaming as a Communication Learning Platform: A Phenomenological Approach

**Effective Date:** April 07, 2020

**Expiry Date:** April 06, 2021

**Restrictions:**

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete (*i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable)*) or the research is terminated.

**Approved by:**

**Date:** April 07, 2020

Carolyn Greene, Chair  
Athabasca University Research Ethics Board