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A QUALITATIVE STUDY OF ADOLESCENT SOCIAL SKILL  
LEARNING OPPORTUNITIES IN MASSIVELY  
MULTIPLAYER ONLINE ROLE-PLAYING GAMES

A Dissertation Submitted in Partial Fulfillment of the  
Requirements for the Degree  
Doctorate of Education in Organizational Leadership

**Benjamin D. Martin**

College of Education and Organizational Leadership  
Organizational Leadership Department

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## Chapter I: Purpose of the Study

### **Introduction**

America’s modern technology has made it possible for people to work from home, shop from home, learn from home, educate from home, be entertained from home, and even socialize from home. The federal government estimates that about 1.1 million students were homeschooled in the spring of 2003 representing 2.2 percent of the student population (NCES, 2004). Another 2003 study found that one in five U.S. households had a high speed internet connection (USDC, 2004). The Organization for Economic Co-operation and Development

reported that the United States had “the largest total number of broadband subscribers at 49 million” at the end of 2005 (OECD, 2005, p. 1). It was estimated in 2004 that 70-75% of Americans have their own e-mail address (Nie, 2004).

A 2005 survey of 135.4 million American workers found that 45.1 million had worked from their home between August 15 and September 1 (Smith). Robert Smith, Director of ITAC, the Telework advisory group for WorldatWork, attributes part of this movement to the “...increasing availability of the portable computer and high-speed communication technologies.” Employees who were traditionally tied to a desk in the office can now perform the same work from home with the help of a personal computer and a broadband internet connection. Businesses save on the overhead related to housing human assets, and workers have the opportunity to trade a mind-deadening commute for an office with all the literal comforts of home.

Education is also going hi-tech. A study of post-secondary online education in the United States reports an increase in students taking at least one online course from 2003 to 2004. 1,971,397 students were enrolled in the fall of 2003. That number increased by 18.2 % in one year. By the fall of 2004 2,329,783 students chose to take at least one class through the Internet (Allen & Seaman, 2005). From convenience to logistics, students have multiple reasons for choosing the Internet option for classes. The notable observation is that the “e-generation” feels comfortable enough with the Internet world that they seek courses and even degrees through this route.

Online music, movies, and a myriad of other forms of entertainment encourage and entice people to stay home. In the second half of 2003, U.S. based services reported 19.2 million legal music downloads through the Internet (IFPI, 2004). The online movie download market, still in

its infancy, appears to be following the same growth trend of the online music industry (Menta, 2004). Online market places and entertainment providers supplying instant service and product to customers are reducing the need for people to go to brick and mortar stores or public entertainment venues.

Dating and romance have also staked claims on the social frontier of the Internet. Arguably one of the most important yet frustrating reasons for getting out of the house and socializing in the past, meeting that special someone can now begin in the world of ones and zeros from the comfort of home. Jupiter research estimated that 17.2 million people viewed online personals while 2.5 million paid for ads on Internet dating services in 2002 (Kornblum). Services help users find matches that share similar interests in an effort to ease the initial phases of meeting and dating. After a period of socialization over the Internet the couples may choose to meet in person if both feel the connection is successful.

News reports of crime and terror in the schools, public spaces, and places of work only add to the reason for home entrenchment. Mark Warr, a sociology professor at the University of Texas at Austin observes: “A ‘free’ society increasingly retreats to its dwellings in a form of asylum from an ostensibly dangerous world” (Warr, 2000). Warr’s asylum theory postulates that the fear of crime, substantiated or otherwise, is driving Americans out of public arenas and into the perceived safety of their homes.

Adults today may reminisce of a childhood filled with outdoor play in their neighborhood, bike rides in their town or city, public school days, and carefree summer vacations. Children of those same adults follow a different plan that is influenced dramatically by safety and security issues. Few children play outside unattended unless they can be secured behind a backyard fence. The authors of the book *Millenials Go to College* call this time “the era

of the protected child” (Neil & William). Parents and society as a whole have found new value in children and have begun a campaign of safety and sheltering. One study found a 51% decrease in outdoor time from 1981 to 1987 for children aged 3-12 with a 24% decrease in free play time during the same time period (Neil & William). Safety concerns prohibit most parents from allowing unescorted bike rides, and a great number of children participate in alternative school programs like charter school or home school partly motivated by fear of school violence such as the infamous Columbine disaster.

Combine these fears with the latest technologies and the increased comforts available in our homes due to the wealth and priorities of our citizenry and it’s no wonder that Americans are showing a greater trend to drop out of public environments.

### **Background of the Problem**

This pattern of self-segregation from society may increase our sense of security, safety, and comfort. However, it may have other consequences that are important to consider. Our historical practice of introducing children to social activity outside the family unit allows them to develop social skills that are crucial to successful performance in social situations (Herbert, 1986). Social aspects of traditional education provide opportunities for children and adolescents to develop social skills through trial and error, modeling, and experimentation in relatively low risk situations. Experts in the field identify school as a traditional environment for social skill development outside the family (Furnham, 1986). Young people learn to function in a social setting that requires them to learn norms and develop skills.

As children and adults filter out of the public places that have been traditional social skill learning environments a developmental gap may present itself in the form of social inadequacy and dysfunction. However, other types of social interaction and opportunities for skill

development may be evolving in the hands of the very people avoiding the crowds. Those who seek asylum in their homes may also be inadvertently building the structures that will bridge the pending gap in social skill development opportunities.

Massive multi-player online role-playing games (MMORPG) are gaining popularity with today's home based culture. These games offer a real time environment that allows players to see each other's character and interact to solve problems or achieve objectives.

MMORPGs differ from single or multiple player role playing games that are typically based on a game console system like a Sony Game Cube, X-Box 360, or Nintendo Wii. MMORPGs are hosted on servers owned by the game company. Play occurs in a persistent world, a world that is never turned off. Players enter and exit the world at their convenience and the world continues to function with other players regardless of their presence.

Modern computer games are often criticized for promoting violence and glamorizing illegal behavior. The Grand Theft Auto series is a popular game that awards players points for stealing cars, shooting innocent bystanders, and numerous other illegal and immoral activities. Its popularity has spawned a number of copy cat games that also allow players to engage in unsavory activities as criminals. The blatant antisocial behavior exhibited in these games has become a popular argument against computer game play. These games are all console games and not MMORPGs, allowing only a few players to play together at a time in game worlds that are not persistent and not hosted by the game companies.

In contrast, MMORPGs offer a hero's journey to the player. The worlds are often inspired by fantasy tales like Tolkien's Lord of the Rings trilogy in Dark Age settings with castles, magic, and dragons. Players develop the skills, experience, and accoutrements of their avatars through game play. While many of the game tasks require combat with game creatures or

other players, there are also tasks that must be accomplished that do not engage the player in warfare.

Since these games are hosted by the game company and constantly 'on', thousands of players can enter and play in the same virtual areas at the same time. The technology of the game allows the players to see each other's avatars or characters on their own computer screens, communicate with other players, and work together to accomplish game tasks.

Studies of the social aspects of these games are just now starting to focus attention to the world inside the computer. Researchers are finding social correlations between the virtual game world and the real world offline. Due to the large populations of players "...any effect of gaming on the offline life of the players is no longer confined to a minority of specialists" and is therefore worthy of consideration. (Kolo & Baur, 2004, pg. 1).

As MMORPGs continue to grow and gain popularity, online social interaction and learning may provide the solution to a lack of real world social opportunities. "Many kids have come to incorporate computer use and play into their activity such that they are as natural an extension of their thoughts and feelings as any other form of play and childhood activity, so much so that turning to the computer terminal is reflexive and automatic" (Zelnick, 2005, pp. 211).

### **Problem Statement**

While opportunities for social interaction and face to face social skill development decrease, new virtual spaces may be providing people with social opportunities for growth. Millions of people are making social connections within the context of MMORPGs. If these games are replacing face to face interaction in our society, players may be learning social skills

by default. Very little is known about the social skill learning opportunities that may be present in these games.

Previous research on MMORPGs and social skills development has found that the games do not have a negative impact on the social skills of the player (Heitner, 2002). A short ethnographic study was conducted to demonstrate that the games do offer some opportunities for socialization and skill development (Ducheneaut & Moore, 2005).

Existing studies show that players may have opportunities to practice and learn social skills. However, these studies did not consider specific skill sets or identify actual player learning in the game environment. If players are learning social skills in these environments we need to know what those skills are. The significance of that learning and its applicability to the real life world cannot be examined until we know what it looks like.

By examining social skill development in MMORPGs theorists and practitioners can better understand virtual worlds, social interaction, and social skill development. With this knowledge researchers can better identify and understand social skill development in situations that do not require or may not allow for face to face interaction.

### **Purpose Statement**

The purpose of this study is to identify and describe social skill development opportunities of adolescent players in massive multiplayer online role-playing games.

### **Research Questions**

This study was designed to answer the following questions:

1. Are social skills exhibited in the MMORPG environment?
2. Do players have opportunities to practice social skills in the MMORPG environment?

3. Do players have opportunities to learn social skills in the MMORPG environment?
4. Do players experience the social skill learning methodology, namely role-play, modeling, instruction, reinforcement, and guided participation in the MMORPG environment?

### **Theoretical Definitions**

**Social Skills:** Skills that enhance an individual's "ability to be competent in dealing with others.

Social competence involves judgment in interpersonal" skills, individual attributes, and the ability to plan and set goals (Windell, 1999, pp. 4, Hair, Jager & Garrett, 2001).

**Adolescence:** "...the period of psychological and social transition between childhood and adulthood" (Wikipedia, 2006).

### **Operational Definitions**

As used in this study the following definitions apply:

**Adolescence:** "...the period of psychological and social transition between childhood and adulthood" (Wikipedia, 2006). For the purposes of this study adolescence will be delimited to the period of development between the ages of 12 and 18 inclusive.

**Avatar:** A graphical representation of a real living person in a computer environment.

Synonymous with character; while avatars may not be represented as human, they are often anthropomorphic bipeds.

**Character:** A graphical representation of a real living person in a computer environment.

Synonymous with avatar.

**Massively Multiplayer Online Role-Playing Game:** "an online computer role-playing game (RPG) in which a large number of players interact with one another in a virtual world. As

in all RPGs, players assume the role of a fictional character (traditionally in a fantasy setting) and take control over most of that character's actions. MMORPGs are distinguished from single-player or small multi-player RPGs by the game's persistent world, usually hosted by the game's publisher, which continues to exist and evolve while the player is away from the game” (Wikipedia, 2006).

**NPC or Non-player Character:** Characters run by the virtual world. They look like players but are part of the game. (Bartle, 2004, p. 287)

**Offline:** Similar to Real Life. Refers to environments and events outside of the computerized virtual world.

**Player:** A participant in a game or other virtual environment.

**Real Life (RL):** The environment of a player or players outside of the computer game. Players in the game often use the abbreviation RL when referring to life outside of the game.

### **Significance of the Problem**

Individuals with healthy social skills promote positive and safe environments, exhibit resiliency in times of crises or stress, seek ways to handle feelings of aggression and frustration in appropriate manners, and take personal responsibility for factors effecting their environment (NASP, 2002). Economist Edward Glaeser attributes an economic concept of social capital, “...the social resources of a community that increases the welfare of that community”, to the development of social skills at the individual level (Glaeser, 2000, pp.383). He argues that individuals with well-developed social skills combine to form formal and informal action groups that promote positive change in communities. If there is a developing gap in opportunities for individuals to develop social skills the community as a whole suffers.

As individuals retreat from the social interactions that help develop these skills a tear in the social fabric may develop into serious social problems. Among other negative impacts, social skills deficits have been associated with higher involvement with the criminal justice system, poor academic performance, mental health problems, and poor employment records (Furnham, 1986). As traditional social skill development opportunities diminish and public spaces turn into empty places many may be turning to the Internet and games to socialize and, by default, develop social skills.

Massively Multiplayer Online Role-Playing Games are offering a social environment to its players as a byproduct of its entertainment focus. Players are experiencing social connectedness as they engage in casual game pursuits. These real social experiences among real people in pretend worlds may be having real effects on social skill development.

If social skills are being learned as byproducts of new virtual environments researchers and practitioners need to understand how that learning is occurring and what that learning looks like before quality decisions can be made about it.

### **Delimitations**

This qualitative portion of this study is delimited to adolescent players of Massively Multiplayer Online Role-Playing Games in the United States of America who voluntarily respond to participate in an online survey. The quantitative portion of this study is delimited to participants who are present in a virtual world being studied during naturalistic observations.

For the purposes of this study adolescence will be delimited to the period of development between the ages of 12 and 18 inclusive.

### **Organization of the Dissertation**

Chapter I of the dissertation is a presentation of the problem and includes documentation of the purpose of the study, research questions, and the significance of the study. This chapter is designed to present the problem of decreased public opportunities for adolescents to develop social skills and the new social skill learning opportunities that may be forming in Massively Multiplayer Online Role-Playing Games. The study is designed to identify and describe social skill development opportunities for adolescent players in massively multiplayer online role playing games.

Chapter II is a review of the literature and includes major categories related to the purpose of the study. Included in the review are sections related to adolescent social development, social skill learning methodology, social skill behaviors, Massively Multiplayer Online Role-Playing Games, and issues facing the current adolescent population.

Chapter III presents methods used to research the problem and obtain data for summary and evaluation. This is a descriptive study and includes both quantitative data in the form of survey responses and qualitative data in the form of naturalistic virtual observations. Instrumentation, interrater reliability, and limitations of the study are included in the presentation of chapter III.

Chapter IV is the presentation, summary and conclusions of the quantitative and qualitative data obtained from the survey and the observations.

Chapter V is the final chapter of the dissertation and presents the reader with the overall impact of the study, a summary of findings, and concludes with implications for future discussion and research.

## Chapter II: Review of the Literature

This chapter presents a review of the literature in the area of social skills and adolescent social skill development and practice. The chapter will also present information and research on Massively Multiplayer Role Playing Games as well as current theories on the millennial generation and modern brain development theory.

### **Social Skills**

Many scholars and researchers have defined social skills with different words. However, the concept is nearly the same in all definitions. For the purposes of this paper social skills are defined as skills that enhance an individual's "ability to be competent in dealing with others. Social competence involves judgment in interpersonal relations" (Windell, 1999, pp. 4), individual attributes, and the ability to plan and set goals (Hair, Jager & Garrett, 2001).

Individuals with healthy social skills promote positive and safe environments, exhibit resiliency in times of crises or stress, seek ways to handle feelings of aggression and frustration in appropriate manners, and take personal responsibility for factors effecting their environment (NASP, 2002). Economist Edward Glaeser attributes an economic concept of social capital, "...the social resources of a community that increases the welfare of that community", to the development of social skills at the individual level (Glaeser, 2000, pp.383). He argues that individuals with well developed social skills combine to form formal and informal action groups that promote positive change in communities.

### **Social Skill Development**

Social skill development begins at home in the family. Most individuals establish their first social relationships with parents and siblings (Hair, Jager & Garrett, 2001 & Furnham, 1986). Adolescence represents the age of separation when children begin to form close social

relationships outside of the family unit (Furnham, 1986). Social skill development continues during this time as youths learn through modeling, reinforcement, and trial and error within their peer groups. Roles and self-image are explored in a relatively safe or low threat environment. Relationships are started, developed, and ended. Experimentation with group identity and roles within the group is common and expected by adult society (Cole & Hall 1970). Adolescents develop important social skills that will help them succeed in adult situations and relationships.

### **Adolescence and Social Skill Development**

“Adolescence is the period of psychological and social transition between childhood and adulthood” (Wikipedia, 2006). Adolescents are discovering who they are as individuals and interpreting and testing their own new experiences against the realities of the adult world they are entering (Horrocks, 1976). With adolescence comes “changes in capabilities, interest, and sense of self as well as in social relationships with family members, peers, and authority figures. Communities, schools, and other social institutions as well as family members and friends attempt to guide the judgments and actions of adolescents as they explore new options and prepare for the responsibilities of adulthood” (Michael, 2001, p. 1).

During this period of time the individual begins to form close relationships with peer groups and individual friends. These relationships are the experimentation grounds for the actions and ideas of the adolescent. It is an opportunity to test and practice the self-identity with a social group that is perceived as safer than the rest of the world (Jersild, 1963, Garrison & Garrison, 1975).

Within the family, it is a time of transition for both the parents and the child. As friendships form and peer groups broaden, relationships with parents and other adults decrease (Church, J., & Stone, J. L., 1979). “Adolescents move toward their peers for support and

encouragement as they get older” (Castle, 2001, p. 43). While some may argue that the adolescent transition to peer groups leaves the family behind, Bloom proposes that the family is not left behind as a social group but that the peer group is added into the life of the adolescent as a social group (Bloom, 1990). The adolescent is not trading one for the other but expanding his social circle to include peers in close relationships. As adolescents transition from the family to peer relationships they often place more importance on friendships and peer associations beginning as early as junior high. Friends or peers are of the same age with common interests and backgrounds (Csikszentmihalyi &Larsen, 1984).

“The general trend is toward the increasing importance of peer relationships, which provide vital intimate feedback to the adolescent in times of rapid personal and social change” (Bloom, 1990, p 14). In fact, research shows that adolescents provide feedback that is more unbiased and constructive than feedback offered from adults to their adult peers (Csikszentmihalyi and Larsen, Year). Peer group relatedness is key to the future social effectiveness and connectedness of an individual. Among other things peers groups encourage adolescents to conform to the norms of groups (Clasen & Brown, 1985).

At this stage of development acceptance into peer groups is no longer automatic. Adolescents must discover if and how they fit into a group and what social role they play in that group (Horrocks, 1976). Intimacy in friendships during this growth phase is an important opportunity for young people to practice social skills and learn how to work through the relationship process from beginning to end (Huebner, 2000). Close friendships in adolescence helps an individual to “...gain a deeper understanding of his own worth” (Jersild, 1963, pp. 255).

“The success and the meanings of our social transactions, friendships, and other relationships define people. This is critical to the adolescent whose identity is becoming

embedded in the perception of his or her place in the social context of life” (Castle, 2001, p 44). Forming successful relationships with peers is an important component of the adolescent experience. Healthy social relationships at the adolescent stage help individuals grow into well functioning adults. Adolescents in successful peer groups learn about honesty and integrity, how to be emotionally open to others, how to take risks in relatively safe environments, and how to work with other (Gottman and Mettetal, 1986).

Individual needs of emotional connection and personal value are provided to an adolescent through close peer relationships. Adolescent friendships are bonds that include consideration, sharing, and empathy, for another (Ginsberg, Gottman, & Parker, 1986). These bonds of friendship become closer as adolescents take small risks within their friendships to exercise more sharing, empathy, and interrelatedness (Castle, 2001). As increased sharing, interactive and empathetic experiences occur in a friendship, the relationship becomes closer. These exchanges are described as “genuine and often vulnerable, emotion-laden disclosures about the self” (Saami,1999, p 287).

During the adolescent development period both positive and negative social behaviors are formed and cultivated based on positive and negative daily social experiences” (Schloss, 1984). Because learned skills from childhood are continuing to develop though adolescence and can be improved through training and positive experiences, it is important to consider adolescent social skill development (Kolb & Hanley-Maxwell, 2003). Social skill training during adolescence has a deep and meaningful positive effect on an individual’s social conduct (Taylor & Larson, 1999).

Peer relationships are important to the emotional and social growth of adolescents. Skills that help adolescents form close peer relationships are critical.

“Difficulty forming peer relationships can have detrimental psychological effects on children and adolescents. Children can experience many different types of

social difficulties. Youngsters who lack the skills to successfully negotiate social situations may become nervous in social situations. Discomfort with the social milieu can lead children and adolescents to avoid social opportunities and become introverted or withdrawn” (Heitner, 2002, p 7).

Social skill deficits have been linked with unhappiness, learning disabilities, and externalizing and internalizing disorders (McGhee & Williams, 1991; Finger & Silverman, 1966; Levendosky, Okun & Parker, 1995; Scheier & Botvin, 1998).

Socially competent Adolescents exhibit faculties and skills that promote healthy social functioning (Barber & Erickson, 2001). Adolescents with effective social skills exhibit positive, prosocial behavior, participate in their social worlds, experience social accountability, are achievement oriented, friendly towards others, demonstrate personal resolve, and are able to balance with other’s needs and their own (Baumrind, 1978; Crocenkenberg, Jackson & Langrock, 1996; Garmezy, 1971; Pandina, Labouvie, Johnson, & Raskin White, 1990). Effective practice of social skills allows individuals to initiate and maintain relationships and to resolve conflicts in relationships when they arise (Asher, Renshaw, & Hymel, 1982). “These qualities place socially competent individuals in a favorable position to attain happiness, develop meaningful relationships, and achieve successful futures” (Heitner, 2002, p. 7).

### **Social Skill Deficiencies**

Adolescents who fail to develop normal social skills will have difficulty in adult relationships and general social interaction. Social skills deficits are exhibited by adolescents who display overt antisocial behavior or “...simply fail to perform appropriate behavior for a given circumstance or setting” (Smith, 1995, pp.2) Skill-based deficits are generally attributed to lack of opportunities to learn or limited models of appropriate behavior (Gresham & Elliot, 1989). Among other negative impacts, social skills deficits have been associated with higher

involvement with the criminal justice system, poor academic performance, mental health problems, and poor employment records (Furnham, 1986).

### **Social Skills Learning**

Social skills are learned during the child and adolescent development process and reinforcement continues through adulthood. What is considered to be normal development is learned through social interaction with family, peers, and others. Indirect modeling and reinforcement as an individual grows from infant to adult, teach behavioral norms, expectations, and skills that guide interactions. Researchers studying social skills deficits and social skill training programs identify role-playing, modeling, instruction, and reinforcement as methodology critical to social skill learning (Warren, 2004, Smith, 2002, SDD of St. Louis County, 1999).

### **Role-play**

Gillian Porter Ladousse advocates role play as a key tool for building language skills. She expertly explains the concept of role play as it pertains to learning in the classroom:

“When students assume a ‘role’, they play a part (either their own or somebody else’s) in a specific situation. ‘Play’ means that the role is taken on in a safe environment in which students are as inventive and playful as possible. A group of students carrying out a successful role play in a classroom has much in common with a group of children playing school, doctors and nurses, or Star Wars. Both are unselfconsciously creating their own reality, and by doing so, are experimenting with their knowledge of the real world and developing their ability to interact with other people. In this situation there are no spectators and the occasional eavesdropper (a parent or teacher) may not even be noticed. None of the risks of communication and behavior in the real world are present. The activity is enjoyable and does not threaten the students’ (or childrens’) personality. This ‘playing’ in role will build up self-confidence rather than damage it” (Ladousse, 1987, pp. 5)

Role play as entertainment begins with young children pretending to be someone other than themselves. This form of play is an important part of social development. “As well as feeding the imagination and encouraging empathy, (role play) is a powerful way of developing social skills, and it’s never too early to begin” (Casey, 2006, pp. 1).

Role play allows players to practice at being different from themselves in a safe environment. Individuals learn real lessons that carry over into their real life through pretend experiences and interaction. “A highly important aspect of role-play is the function it plays in socialization. It encourages friendship, involving as it does cooperation, listening, and turn taking. Negotiations about characters assumed, the way in which the ‘plots’ should develop, and how the roles themselves should be fairly allocated are crucial to the happy and successful outcome of the game. Through this, young children quickly learn that all human activities, not just card or board games, are subject to rules” (Casey, 2006, pp. 2).

Role play in a computerized virtual world gives players more freedom to experiment with identity and social connections. “The notion ‘you are who you pretend to be’ has mythic resonance. The Pygmalion story endures because it speaks to a powerful fantasy: that we are not limited by our histories, that we can recreate ourselves” (Turkle, 1995, pp. 192)

### Modeling

Scholars and professionals in the field recognize modeling as a powerful tool for teaching social skills. “Observing a Model is a type of vicarious learning that can lead to behavioral change without the learner actually performing the behavior or directly experiencing the consequences” (Manz & Sims, 1981, pp. 108). Among other functions role models serve “as living evidence that certain achievements are possible and as models for emulation in achieving and maintaining certain social positions” (Filstad, 2004, pp. 2).

In one study a participant defined a role model as “a person you look up to and learn from, based on some personal characteristics, behavior in some situations, and/or his relationship with others. The role model serves as a positive example in a situation, with consequences the observer wants for himself, but also as a negative example with consequences the observer does not want” (Filstad, 2004, pp. 3).

A study of newcomers in an employment setting identified learning from role models and modeling as a key component to social inclusion and success in organizations (Filstad, 2004). Learning by observation of others allows individuals to learn “the components involved in performing” (Manz & Sims, 1981, pp.108) and link actions and consequences without having to experience mistakes (Bandura, 1977, & Mahoney, 1974).

Newcomers must interact with established members in order to learn. “Observation without being able to interact with role models is insufficient” (Filstad, 2004, pp. 2). Often, newcomers may not be aware that they are modeling the behavior of others or will (not) admit that they use models to learn how to succeed in an organization (Filstad, 2004).

The literature finds that no one individual can be the perfect model for others to emulate. Learners who use models successfully select traits they find desirable from different individuals and discard undesirable actions and characteristics of these individuals (Filstad, 2004). Where the term role model may be inaccurate, the more general term of modeling may be more applicable.

### Instruction

Probably the most formal and direct way of teaching, “instruction is a form of communicated information that is both command and explanation for how an action, behavior, method, or task is to be begun, completed, conducted, or executed” (Wikipedia, Instruction,

2006). Both the teacher and the learner are usually aware that teaching is happening in the process of using the instruction methodology.

One instructional approach to social skill training is cognitive behavior, a theory that ties thoughts to actions. Through instruction students are taught to think about their thoughts in a meta-cognitive approach and learn that they can control their thoughts and thereby control their actions. Cognitive behavior instruction often focuses around positive self-talk to help slow down and examine the thought process before an action is made. Essentially this is a way to teach people how to think before they act. Researchers are applying this approach to social skill instruction for children and adolescents with behavior control and aggressive behavior issues (Smith, S. W., 2002)

In instruction for social skills “the teacher defines the social skill and explains the process steps a student uses to be successful using the skill” (SSD St. Louis County, 2002, pp. 15). The teacher leads a discussion on the skill and covers the rationale, physical and mental actions, and situational examples for the particular skill (SSD St. Louis County, 2002).

### Reinforcement/Feedback

Authors in the field list reinforcement or feedback as an important component of social skill learning. “The driving force behind feedback of any sort is change. Rational thinking human beings have the capacity to change” (Arreguin, J. et al., 2005). Feedback in pedagogy refers to the process of the learner becoming aware of the effectiveness of his decisions and actions. Typical feedback is one teacher/observer reviewing the decisions and actions of a learner with both evaluating those decisions and actions for efficacy.

While this is an important methodology in instruction for many things it is often underutilized because leaders, managers, and trainers do not understand how to use feedback

effectively (Beatty & Bremley, 1999). Advocates for feedback as a learning tool in the workplace encourage managers to use it and employees to expect it. “Reliable feedback from someone who knows gives workers their best chance to learn, improve, and deliver the expected results” (Beatty & Bremley, 1999, pp. 1). “Feedback offers people additional information about themselves. It is a service and indeed an entitlement so should be welcome as such by the recipient” (Hammond, pp. 1).

Some of the descriptors of effective feedback include timeliness, objectivity, specificity, helpful and behavior focused (Beatty & Bremley, 1999, Hammond, SSD St. Louis County, 1999). Feedback is meant to be a safe learning tool that allows those who receive it to learn directly from their own experiences.

### Guided Participation

The concept of guided participation, while not directly mentioned in the literature on social skill learning, is implied in the descriptions of the normal learning process for social skills. This concept of an almost mentor and protégé relationship is especially applicable to adolescent learning when peers take turns testing and reinforcing or testing and rejecting each others thoughts, actions, and skills.

In this practice newcomers to a process or skill learn from a more experienced practitioner acting as a teacher or mentor as they both progress within the practice. The purpose of this relationship is to pass on the knowledge and skill needed to successfully operate in the function in which they are engaged (Berger, 2005). “This active apprenticeship is a crucial concept for sociocultural theory, which holds that each person depends on others for learning” (Berger, 2005, pp. 46).

### Social Skill Categories

Hair, Jager, and Garrett identify two major categories of social skills, interpersonal skills and individual attributes (Hair, Jager & Garrett, 2001). The literature suggests a third category of planning and goal setting. Skills identified in the literature can be categorized within these three areas. These categories consider an individual's ability to relate to others, regulate his own behavior, and manage his future through planning and goal setting.

### Interpersonal Skills

Interpersonal skills include conflict resolution, intimacy, and prosocial behaviors (Hair, Jager & Garrett, 2001). This area considers the individual and his relationship with others.

Conflict Resolution considers abilities like negotiating solutions peacefully (Hazel et al., 1981, Windell, 1999, Goldstein & McGinnis, 1997, Begun, 1996), using persuasion (Goldstein & McGinnis, 1997, Begun, 1996), making complaints (Goldstein & McGinnis, 1997, Lugnigaris et al., 1988), dealing with accusation (Goldstein & McGinnis, 1997, Begun, 1996), responding to failure (Goldstein & McGinnis, 1997, Begun, 1996), problem solving, decision making, (Begun, 1996) and disagreeing appropriately (Boy's Town Press, 1992). Skills in this area enable a person to resolve conflict in healthy ways without resorting to socially unacceptable means such as violence or submissiveness.

Intimacy as an interpersonal skill requires a metacognitive approach to one's own feelings. Being personally aware of feelings and being able to express them (Goldstein & McGinnis, 1997, Begun, 1996) are an important aspect of intimacy as a social skill. This extends to an ability to identify the needs those feelings create and how to find ways to fulfill those needs in a socially acceptable manner. For instance, recognizing socially acceptable ways to acquire friendship and love (Sheinker et al., 1988).

Prosocial behaviors are probably what most people consider to be social skills. They are outward manifestations of positive interaction between people. Concepts like following instructions (Hazel et al., 1981, Goldstein & McGinnis, 1997, Boy's Town Press, 1992), listening (Goldstein & McGinnis, 1997, Begun, 1996), communicating in a neutral tone (Windell, 1999), saying thank you (Goldstein & McGinnis, 1997, Lugnigaris et al., 1988), giving a compliment (Goldstein & McGinnis, 1997), asking for help (Goldstein & McGinnis, 1997, Lugnigaris et al., 1988), and giving instructions (Goldstein & McGinnis, 1997, Lugnigaris et al., 1988) are easily recognizable and often considered good manners. These types of skills can often be taught as automatic responses to outward stimuli and professionals disagree about the effectiveness of this type of training. A deficient person can be taught to behave as if they were listening even if they did not really intend to listen or have the capacity to listen for more than a few moments. Many experts push for deeper cognitive training to help students understand concepts like what it is to listen or what it means to be thankful to someone.

A matrix correlating the authors in the field with the interpersonal skills theory area can be found in Appendix A.

### Individual Attributes

Individual attributes include self-control and behavior regulation, social confidence, and empathy (Hair, Jager & Garrett, 2001). This area recognizes the importance of the individual's roles and identities, his ability to manage his actions and emotions, and his internal view of himself and his interconnectedness to others.

Self control and the ability to self regulate behavior are crucial components to successful social interaction. Individuals who lack these skills are seen by others as confusing, inconsistent, and even scary. Some skills necessary to exhibit these attributes include accepting negative

feedback (Hazel et al., 1981, Boy's Town Press, 1992), dealing with peer pressure (Hazel et al., 1981, Goldstein & McGinnis, 1997, Begun, 1996), using self control (Goldstein & McGinnis, 1997, Windell, 1999, Begun, 1996, Sheinker et al., 1988), and using self rewards (Goldstein & McGinnis, 1997, Begun, 1996). When someone is in control of their own behaviors their actions are more predictable for themselves and those around them. Others can rely on them to react in a safe and acceptable manner and find comfort in this consistency.

Social confidence, like other positive character traits in the social skill venue, includes both external actions and internal processes. Noticeable behaviors like initiating and maintaining conversation (Hazel et al., 1981, Goldstein & McGinnis, 1997, Begun, 1996, Boy's Town Press, 1992), introducing one's self (Goldstein & McGinnis, 1997, Boy's Town Press, 1992), and kidding and joking (Lugnigaris et al., 1988) convey a certain level of interpersonal ability. However, while these things are necessary, real social confidence also includes an understanding of self-perception and self-definition (Sheinker et al., 1988). This metacognitive process of recognizing one's own feelings about the self is the first requirement to deep inner change and allows the individual to grow in controlled directions.

Empathy is also considered an important attribute for successful socialization. Empathy involves the ability to meaningfully apologize (Goldstein & McGinnis, 1997, Lugnigaris et al., 1988), understand the feelings of others (Windell, 1999, Goldstein & McGinnis, 1997), help others (Goldstein & McGinnis, 1997, Begun, 1996, Lugnigaris et al., 1988), and perceive one's self through other's perspectives (Sheinker et al., 1988). It is a web of common understanding that extends from each individual to all those around him or her.

A matrix correlating the authors in the field with the individual attributes theory area can be found in Appendix B.

### Planning and Goal Setting

While Hair, Jager & Garrett did not consider planning and goal setting as an important component in the social skill arena, many authors in the field have included this area in the literature. Many scholars identify the ability to plan, set goals, and work toward goals as an important component in social competency. Goals represent change and are based on one's desire to improve something. If an individual is able to deal with change in positive ways and seek improvement in his life then he will be better equipped to function and thrive in the ever-changing social system that humans have created.

The skills of planning and goal setting involve the ability to recognize causation and identify action (Goldstein & McGinnis, 1997, Sheinker et al., 1988), set goals (Goldstein & McGinnis, 1997, Begun, 1996, Windell, 1999), set priorities (Goldstein & McGinnis, 1997, Begun, 1996) and to motivate one's self to act on those goals (Sheinker et al., 1988).

A matrix correlating the authors in the field with the planning and goal setting theory area can be found in Appendix C.

### **Elements of Social Skill Development**

For the purposes of this study elements of social skill development are defined as observable actions and behaviors that demonstrate opportunities to learn social skills. The literature identifies social skills that range from emotional states to observable actions or behaviors. In an observational study only actions and behaviors can be identified and related to social skill learning opportunity. While the cognitive motivation behind any single action can not be known through observation, a collective pattern of observable behavior can indicate social skill learning opportunities (Thorndike, 1991).

The literature identifies role-playing, modeling, instruction, reinforcement, and guided participation as methods of social skill learning. If these methods exist in MMORPGs as well as actions or behaviors indicative of social skill practice it might be concluded that players have opportunities to develop and practice social skills in MMORPGs.

A matrix of social skills variables and social skill learning methodology was created from contemporary social skills researchers. Elements were identified as actions and behaviors indicative of social skills practice. These social skills elements provided the framework to develop the matrix. The matrix created for the research is named, “Elements of Social Skill Learning Opportunities.” The matrix instrument is located in Appendix D.

### **Massively Multiplayer Online Role-Playing Games**

Massively Multiplayer Online Role-Playing Games are descendents of role-playing games of the Dungeons and Dragons era. Early online virtual worlds were called multiple user dungeons or MUDs and were entirely text based. Players would enter a room, read a description of the room and see a list of the other players in it. Players would type messages to each other to converse and describe their actions (Bartle, 2004). As technology advanced and computer graphics came into play the virtual worlds began to more closely resemble reality both visually and in the manner that the players interact with the environment. “MMORPGs provide a graphic environment that resembles the real world in functionality (in the sense of possible actions) and appearance. The players control their online personae, which we will call characters, via a variety of modes of the human-computer-interface, confined by technical restrictions and more, or less, formalized and sanctioned rules. This thereby creates a parallel space of social interactions among the characters in the gameworld” (Kolo & Baur, 2004, pg. 1).

Online games are based in virtual worlds with incredible computer graphics and intriguing story lines. Games are non linear and require players to explore the virtual world and complete various tasks to advance. Players new to the game begin by choosing a character or avatar to represent them in the game. Players must choose a race, such as human, dwarf, night elf, or gnome in the game World of Warcraft. The player also has the opportunity to select the looks of their character by choosing among variables of skin color, hair style, facial characteristics, and other features.

Most MMORPGs are based on a point system. The object of the game is to accumulate as many points as possible. Current game design theory supports a maximum possible number of points to limit the power of high point players (Bartle, 2004). Points in the game are earned by performing tasks assigned by the game to each individual player. Games have so many different options for tasks that every player participates in different exercises at different times and in different orders. As the players perform more tasks, explore more of the game world and spend more time in the game they accumulate more points. Higher point levels allow the players to experience new adventures, gain more goods, gain stronger powers and thus earn more points.

A typical characteristic of a MMORPG is the lack of a comprehensive book of instruction. Players are given enough information to help them establish an account, create a character and start playing. Beginning tasks for new players are centered on learning how to control a character, gain points and seek new tasks. The nature of the game is to learn how things work by exploration and experimentation. When a player's character dies in a game the game is not over. The character is transported to a different area and must continue the game from there. Upon death of a character in the game The World of WarCraft the spirit and the body are separated. The body lies where it was killed and the spirit is instantly transported to the nearest

cemetery where it must make its way back to the body to be reunited and resume play. While in spirit form the character cannot accumulate points or participate with other players. Death is a temporary setback and represents a relatively safe way to fail.

Three of the most popular games in the MMORPG collection are EverQuest, World of Warcraft, and Second Life. These three virtual worlds are notable due to their popularity and ground breaking contributions to the genre.

EverQuest started in March of 1999 and was, for many years, the most popular western world game (Woodcock, 2006). The sequel to the original game, EverQuest II, was released in 2004 and is slowly declining in popularity and subscribership (Ciriclight, 2007)). EverQuest is descended from the early text based games known as Multiple User Dungeons, or MUDs.

The early success of EverQuest encouraged the creation of many new games by various companies striving to appeal to the online gaming community. Hoping to emulate the popularity of EverQuest, Blizzard entertainment developed the World of Warcraft MMORPG that was basically a combination of their existing personal computer based game and the EverQuest massively multiplayer concept.

World of Warcraft was released in November of 2004 and is currently the worlds most popular online game. The company reported a user base of 9 million subscribers in July of 2007. Its unforeseen success has captured the attention of media outlets around the world and most Americans have either played the game or know someone who has. World of Warcraft is a cultural marker for the later part of the decade.

Both EverQuest and World of Warcraft provide the virtual world experience to players through fantastic graphics depicting worlds inspired by the original Dungeons and Dragons board games and fantasy epics like J.R.R. Tolkien's The Lord of the Rings trilogy or C.S. Lewis'

The Lion, the Witch, and the Wardrobe series (Bartle, 2004). Drawing on fictitious and creative imagery of the dark ages, multiple races of intelligent and fantastic peoples and monsters, and an unlimited concept of magic, power, and possibility, these games provide a rich depth that attempts to mimic the amount and quality of detail in real life while providing more options for action with minimal risk.

These games and games like them focus heavily on avatar or character development and progression through experience and over time. Each player chooses one or more avatars to use to interact with the game during play. While many players have more than one avatar, each account can only play one avatar at a time.

New players become familiar with the game functions through play. A player is given small projects or missions to complete called quests in both World of Warcraft and EverQuest. These quests are often centered on fighting or conquering creatures created and controlled by the computer. While opportunities exist for one player's avatar to fight with and kill another player's avatar, most of the effort expended in warfare in the games is with computer controller creatures.

As the player explores the virtual world and completes quests he gains points termed xp for experience points. Over time the player will learn new game skills, acquire items that increase his abilities to perform, and meet other players. These games practice a learning by doing approach to proficiency development. Tasks available to new and low level players are basic and suited to character development while quests for high level players are difficult and nearly often require teamwork and group participation.

MMORPGs are social worlds. Most games are designed to not only let characters collaborate to accomplish tasks, but actually require it through structure and complexity. The requirement of group work and cooperation to accomplish quests in these games not only

encourages interaction but practically forces it upon players who wish to advance. This demands a solid communication system to allow players to organize and work together. The game provides a chat window that allows players to communicate with each other on a one-on-one, small group, or large group basis. Avatars use the tools to send text messages to each other inside the game. Typically a player can speak to the entire world they play in, all the players with a character in physical proximity in the virtual world, a small specific group, or just to one other player. Players help each other, challenge each other, and visit with each other through this messaging system.

The players also see each other's avatar in the game. If one's avatar were to stand in a busy area in the virtual world, one would see the other avatars in the area being played by other players. The combination of the required interaction, the communications technology, and the visual representation of other players in the game combine to create a community rich in social connectedness. By virtue of the technology combined with the element of play, real people in separate locations are coming together in social connections in these game environments.

While social connectedness is a byproduct of fantasy games like World of Warcraft and EverQuest, it is the central purpose of Second Life. Launched in 2003 by Linden Labs, Second Life has grown to a staggering 9.2 million accounts in 2007 (SecondLife.com, 2007). While many accounts are inactive the game stats reported over 1.5 million people logged into the game in the last 60 days ending August 30, 2007 (SecondLife.com, 2007). Second Life is a virtual space unlike most other gaming worlds. Second life does not qualify as a game in the sense of competition, points, winners and losers, or other qualities that one normally thinks of when discussing games. It does offer opportunity for play or pretending much like children might play at the game of house.

Like World of Warcraft and EverQuest, Second Life offers a virtual space that players explore and use to find entertainment and expand experience. Players also use avatars as a means of exploring and representing themselves in the game. This is where the similarities end. Much the same as real life, the virtual world in second life is an unwritten and unplanned adventure that is shaped by ones actions and social connections.

The draw of Second Life is all that its name implies. It is an alternate space that players, called residents, can use to develop relationships, run businesses, share knowledge, gain knowledge, and participate in many other activities similar to life outside the game. It is, in essence, a second life. The strict anonymity allows residents to take on roles and realities alternate to their real life experiences and responsibilities. Residents can play a game of pretend or be their real self as they participate in the social worlds of Second Life.

### Player Anonymity

Anonymity is a fact of life in MMORPGs. For most games, users participate by purchasing software for a game and installing it on their personal computer. They are then able to gain access to the online virtual space by purchasing game time on cards sold at retail stores or through online sales. Many game companies know their customers only through game account numbers and have no personally identifiable information for the customers who use their product.

This anonymity is further magnified by the means of interaction in the game. Players select avatars or graphical representations of themselves from a given array of choices. While many features are changeable, like hair style and color, skin color, and so forth, most characters basically look the same. It would be impossible to create an identifiable picture of a player

through the appearance of their avatar. The future may offer avatars that look more like their players. For now the technology is not employed and many players enjoy avatars that represent them in another way than their own bodies do in reality. The selectable appearance of the avatar is part of the role-play process and one of the desirable features of the game concept.

Names of players in the game setting are not the real names of the individuals controlling the character. In most games avatars are given a fictitious name by their players and in the case of Second Life, a fictitious last name as well selected from a list provided by the game software. This is the name used to address the player in the game and is usually visible in text above the avatar as it moves through the game environment.

Communication in the game is done by means of an instant message chat window that allows players to write text to one another during game play. Players are addressed by their fictitious character names and since the exchange is inside the game no personal email or contact information need ever be shared. Players are protected from possible malicious behavior through the strict anonymity these features offer. This anonymity also offers players a low risk environment in which to explore roles and test actions with few negative consequences for mistakes.

### **Engaging Environments**

Studies have shown that both children and adolescents can learn social skills through literature (Cartledge & Kiarie, 2001). Entertaining stories offer a captivating experience that readers can immerse themselves in to experience social modeling that develops skills for the reader to employ in the real world. Cartledge and Kiari (2001) advocate developing a joint reading and social skill development program for primary and secondary students to fill a training gap in social competencies.

Steven Johnson (2005) argues that online games provide a similar opportunity. Captivating visual graphics and fantasy filled worlds also encourage players to immerse themselves in the experience. The additional benefits games have to offer include non-linear story lines that the players can control and the social interaction due to the virtual presence of other players. Johnson (2005) implies that games have a greater opportunity to foster social development than do books.

### **Learning Opportunities**

While the concept of in-game learning and opportunities to learn may be old news to MMORPG players, it's a concept that non-players either don't believe or don't understand. Game designers and players probably all agree that "...all virtual world traditions have the same aim: learning. With social- and game-oriented worlds, players learn about themselves; with educational worlds players learn whatever they're taught but also about themselves" (Bartle, 2004, pp.618)

Bartle identified the following attributes virtual worlds offer educators:

- They are collaborative
- They are motivational
- They involve language use
- Children find it easier to express themselves in them
- They are a change from classroom learning
- They can be used remotely
- The interface is easy to learn
- Disruptive behavior is easier to deal with

(Bartle, 2004, pp.617)

Learning is a by-product of playing the game. Steven Johnson, author of Everything Bad is Good for You, argues that the online games being played today offer valuable learning opportunities. He identifies the well-defined reward system as one of the key motivators to

exploration and learning within the game. “If you create a system where rewards are both clearly defined and achieved by exploring an environment, you’ll find human brains drawn to those systems, even if they’re made up of virtual characters and simulated sidewalks.” (Johnson, 2006, pp.38) While rewards in the form of advancement in the game may be varied or derived from multiple sources, games that offer tangible rewards encourage players to learn and achieve (Bartle, 2004). “People learn something because it helps them achieve some goal” (Schank, 1997). Players in MMORPGs learn how to play and interact in the game so they can advance to higher levels or experience new adventures. The virtual experiences and rewards for playing are the goals they seek.

Because games encourage exploration players learn as they continue in the game. The rules of the game must be figured out during play. The game structure encourages trial and error. “...Far more than books or movies or music, *games force you to make decisions*” (Johnson, 2006, pp.41). “All the intellectual benefits of gaming derive from this fundamental virtue, because learning how to think is ultimately about learning to make the right decisions: weighing evidence, analyzing situations, consulting your long-term goals, and then deciding” (p.41).

Johnson has identified what he calls two modes of intellectual labor players must exercise in online gaming: probing and telescoping (2006, p.41). Probing represents the exploration aspect of the game. When a player is probing he is learning by playing. He is forced to “...probe the depths of the game’s logic to make sense of it” (Johnson, 2006, p.41). Through trial and error, through experimentation, the player learns the rules of the game and figures out how the game is played. “...the ultimate key to success lies in deciphering the rules, and not manipulating joysticks” (Johnson, 2006, pp.43). Johnson labels steps in the probing process as “Probe,

Hypothesis, Reprobe, Rethink” (2006, p.45). Through the probing process players are learning and engaging the basic scientific method (Johnson, 2006).

Johnson’s definition of telescoping is managing interlinked simultaneous objectives. He is specific to state that this mental labor is not multitasking. Telescoping is about order of interlinked objectives, not chaotic unrelated activities (Johnson, 2006). Successful players learn to focus “...on immediate problems while still maintaining a long-distance view” (p.54). Telescoping is about conceptual interrelation and “determining priorities” (p.55).

### **Value in Play**

Millions of people world wide play MMORPGs. Social systems that cross gender, age, race, national, economic and political barriers are forming in these virtual realms. Due to the large populations of players “...any effect of gaming on the offline life of the players is no longer confined to a minority of specialists” and is therefore worthy of consideration. (Kolo & Baur, 2004, pg. 1).

“Many kids have come to incorporate computer use and play into their activity such that they are as natural an extension of their thoughts and feelings as any other form of play and childhood activity, so much so that turning to the computer terminal is reflexive and automatic” (Zelnick, 2005, pp. 211).

Games are nonlinear, unlike television or books and offer learning opportunities and cognitive exercises that have direct application in the real world (Johnson, 2006). Psychologists are experimenting with virtual worlds as a treatment and learning tool for patients with autism. While there are varied degrees of autism, all patients suffer from “...a marked impairment in social skills” (Parsons et al., 2000, p. 163). The AS Interactive project recognized the value

virtual environments offer. “The shared features between virtual and real worlds may facilitate the generalization of skills from the former to the latter” (Parsons et al., 2000, p. 164).

In another study published in 2006 findings demonstrated that children with ADHD could learn social skills through an interactive computer program used to train and teach social problem solving skills (Fenstermacher, 2006). All participants showed improvement in some problem solving subskills during a role-play assessment (Fenstermacher, 2006).

### **MMORPGs and social skills**

Researchers are beginning to discover the virtual worlds created by game makers and explored by players. The societies within these make-believe spaces are just beginning to be the object of study. While the people who play in and create these digital representations of reality know that there is more to the virtual world than just the game, the rest of the real world is just figuring it out. New studies are beginning to examine the possible impact these games are having on the world.

Erica Heitner published a 2002 study on the relationship between Internet use and social development of adolescents using the Personality Inventory for Youth created by David Lachar and Christian Gruber. The PIY was employed to rank the students on social withdrawal and social skills deficits (pg 26). Heitner’s study concluded, among other things, that time spent by adolescents on MMORPGs was not related to poor social development or social skills deficits. On the contrary, the study concluded that time spent on the Internet in real-time synchronous activities contributed to higher peer status at school.

A 2000 study found a direct correlation between time spent on the internet and depression and social isolation in adolescents (Sanders, et al). Heitner notes this study and attributes the difference to the chronology of the two studies and the light speed development and distribution

of the Internet and synchronous tools of communication such as instant messaging and chat. However, the Saunders study only considered time spent on the Internet and not how that time was spent. The Heitner study was more thorough in the examination of how the students spent their time online. Because of the studies' examination of synchronous vs. asynchronous Internet activities Heitner was able to conclude that adolescents who spent time participating in solo or asynchronous activities did rank low on the PIY test for social withdrawal and social skills deficits (Heitner pg 48). This is consistent with the findings of the Saunders study of 2000.

A 2003 survey conducted by Nicholas Yee indicates that players of massive multi-player online role playing games feel that the social interaction in the game has benefited them in real life situations. The data from the self survey indicates a significant amount of players feel that they have learned leadership and relationship skills in the game that have carried over into their real-world life. The average age of the players who feel a strong improvement in these areas and attribute the growth to the game experience is around 20 years old (Yee, 2003, pp. 3). The data indicates that the younger players feel more growth and learning in the social arena than the older players and credit the growth to their experiences in the game.

A 2005 ethnographic study of the MMORPG environment in the game Everquest found that players have the opportunity to develop social skills in three areas (Ducheneaut & Moore, 2005). Through game play the participants had the opportunity to learn self-organization, instrumental coordination, and sociability. These skills, argue the researchers, have direct correlation to social skills in real life and can help players to improve and grow in real life social interactions. While the research demonstrates that the opportunities exist for players to obtain and practice these skills in the game, the data does not target the next question: Do players learn these skills in the game and transfer the knowledge and practice to their real life interactions.

Ducheneaut and Moore would postulate that, while more research needs to be done in this area, it naturally follows that learned game skills are applicable to real life.

### **Technology of MMORPGs**

A player connects from a remote location to the game server through the Internet

Figure 1

Massively multiplayer online role playing games are only possible through the use of today's modern technology that allows players to log into a game world from a remote location using an internet connection. The game World of WarCraft (WoW) by Blizzard Entertainment uses an earth-like environment for players to explore and play in. Each game world is run by a central computer server that players log into from remote locations. Each world can host up to 100,000 players. Currently one of the most popular games, WoW players now number over five million. This translates into over fifty separate worlds that players can choose to participate in.

Figure 2

Many players connecting to a game server through the Internet

While the worlds are identical in look, they differ in manner of play and socio-political structure due to the desires and actions of the players in each particular world. Players do not freely move from world to world. Typically a player chooses a world to play in when they first sign up for an account. Players pay a monthly fee of \$15.00 to play World of WarCraft and at over 6.5 million players with this one company it's easy to see that these games are huge revenue generators.

### **Isolation**

Americans have fewer close relationships and are more family-based than they used to be (Duke, 2006). Advancements in technology allow people to do many things from home that were not possible even a decade ago. A 2005 survey of 135.4 million American workers found that 45.1 million had worked from their home between August 15 and September 1 (Smith). Robert Smith, Director of ITAC, the Telework advisory group for WorldatWork, attributes part of this movement to the "...increasing availability of the portable computer and high-speed communication technologies."

A study of post-secondary online education in the United States reports an increase in students taking at least one online course from 2003 to 2004. 1,971,397 students were enrolled in the fall of 2003. That number increased by 18.2 % in one year. By the fall of 2004 2,329,783 students chose to take at least one class through the Internet (Allen & Seaman, 2005).

Not only is work and school going online and virtual, romance has jumped on the bandwidth wagon as well. Jupiter research estimated that 17.2 million people viewed online personals while 2.5 million paid for ads on Internet dating services in 2002 (Kornblum).

Fear of increased levels of crime also contributes to isolationism. Mark Warr, a sociology professor at the University of Texas at Austin observes: “A ‘free’ society increasingly retreats to its dwellings in a form of asylum from an ostensibly dangerous world” (Warr, 2000). Warr’s asylum theory postulates that the fear of crime, substantiated or otherwise, is driving Americans out of public arenas and into the perceived safety of their homes.

### **Millennial Generation**

Today’s adolescents are part of what has been coined as the Millennial Generation. People born after 1981, coming of age around the turn of the century, are considered to be Millennials (Howe & Strauss, 2000,). The Millennial generation, under 24 in 2001, numbered 97 million and accounted for 35 percent of the total population—over the baby boom’s 28 percent share (NS Editors, 2001). In 2001, “among school children aged 9-17, the 53 percent majority use the internet. The proportion is even higher among 18-to-24 year olds, 57 percent of whom are Internet users” (NS Editors, 2001, p. 5).

Research indicated a technologically advanced demographic with positive attitudes toward adults, collaborative learning, and social networks (Howe & Strauss, 2000). “They are more numerous, more affluent, better educated, and more ethnically diverse. More important,

they are beginning to manifest a wide array of positive social habits that older Americans no longer associate with youth, including a new focus on teamwork, achievement, modesty, and good conduct” (Howe & Strauss, 2000, p. 4).

Having grown up in the microchip era it is no wonder that the current generation of adolescents is not only comfortable with technology but takes advantage of its capabilities daily. From computers to cell phones, beepers, and digital music and video machines, Millennials are more techno savvy than any other generation. The thrust of most of the technology they practice is targeted at communication with friends and family (Howe & Strauss, 2000). The technological revolution “has put the joystick squarely in their hands” (NS Editors, 2001, p. 2).

The current adolescent has greater access to information and technology than ever before in the history of the world. Whether it is attributable to technology and access or simply a byproduct of the evolution of the adult world, Millennials are diverse, independent, and embrace a feeling of power (NS Editors, 2001, Howe & Strauss, 2000.).

### **Problem Based Learning**

A popular argument in favor of virtual worlds and MMORPGs today is the idea that they operate as successful examples of problem based learning environments. Problem based learning, or the learning approach of giving the student a problem and the freedom to figure it out is a timely and popular concept for today’s educators. In favor of the opportunities offered by simulations one research group states, “The architecture of this learning environment follows from the premise that if we are to prepare better students for the challenges of the contemporary workplace, we must shift our focus from a content-centered to a problem-based approach” (Ip, et al. 2000, pp. 3).

A 1998 article in The National Teaching and Learning Forum lists the benefits of the problem-based learning approach to education:

“...problem-based learning (PBL) ends up orienting students toward meaning-making over fact-collecting. They learn via contextualized problem sets and situations. Because of that, and all that goes with that, namely the dynamics of group work and independent investigation, they achieve higher levels of comprehension, develop more learning and knowledge-forming skills and more social skills as well. This approach to teaching brings prior knowledge into play more rapidly and ends up fostering learning that adapts to new situations and related domains as quickly and with the same joyous magic as a stone skipped over a body of water” (Rhem, p. 1).

MMORPGs are essentially entertaining problem based learning exercises that engage players through fantasy based worlds and superior graphics. Role play simulations in the virtual spaces allow players to explore and learn in safe environments that incorporate repeated failure as a part of the experience. In problem based learning failure during the experimentation and exploration process is expected and encouraged. “People learn by experiencing failure” (Schank, 1982).

Virtual leaning environments are being developed to allow students with alternative learning styles to experience learning in non-traditional ways. Simulation role-play is an effective method for delivering content and encouraging learning:

“Since the need to explain arises only when something unexpected happens, a good learning-by-doing environment would put students into situations where they can possibly encounter failure and encounter these failures in a safe and protected environment. The role-play simulation ... offers students exactly that opportunity, that is the benefit of making mistakes without serious consequences” (Ip, et al. 2000, pp. 3).

### **The Developing Brain**

Research into the modern culture and its effect on the human brain indicate startling threats to interpersonal relationships and society’s ability to demonstrate empathy. The rapid pace of life requires people to quickly process information and be able to redirect attention and prioritize tasks at a pace that leaves little time for depth and rich development of meaning. Functioning in these cultural and technological requirements on such an all-encompassing basis is altering the

cognitive processes of the brain. (Restack, 2003) The human brain is actually changing to meet the demands of the modern world. “And such alterations come at a cost—a devaluation of the depth and quality of our relationships” (Restack, 2003, p. 48).

Images presented in television and other forms of media also contribute to the changes in the brain of modern man. While artists and photographers seek to create an emotional response in the people who view their work, that response can only be, for the most part, passive. Images in the media may evoke emotion, but little action can be taken to respond in positive ways that allow the individual to change or effect the subject of the image viewed. The repetition of emotionally stirring negative images in the media combined with the inability to take action “may disconnect us from our desire and ability to respond with care... Constant exposure to such images may cultivate passivity in the face of events that demand empathy and action” (Restack, 2003, p. 80).

In contrast, the online game environment offers rich images and events that players can interact with and upon. Players who view disturbing or emotionally stirring images or events in the game can take action with their avatar to effect the outcomes and reoccurrences of these events. Virtual worlds bring an entertainment venue that offers action as an option for the players. It allows players opportunities to practice involvement and experiment with outcomes. The anonymous social interaction in virtual worlds coupled with the ability to form relationships and take action may aid to counteract the effects of the high paced culture and imagery overload players are experiencing in the real world.

### **Summary**

The review of the literature provided a framework for defining elements of social skill practice that are observable behaviors. The literature also identifies social skill learning methods that may present themselves in MMORPGs. As a subject of social research, virtual worlds and

MMORPGs are fairly new. The literature demonstrated that social skills and MMORPGs are a subject of interest in the field and some players attributed improved social skills to participation in MMORPGs. The current adolescent population is part of the millennial generation and is socially sophisticated, team oriented and techno-savvy. They are embracing communications systems that allow them to stay connected to friends and family and are responding to educational approaches centered on problem-based learning.

## Chapter III: Methodology

### **Introduction**

This research seeks to describe elements in massively multiplayer online role-playing games that may contribute to adolescent social skill development. In addition the study seeks to identify social skill learning opportunities in the massively multiplayer online role-playing game environment. This chapter presents the purpose of this study, the research questions, the type of research methodology applied, the sampling procedures and description of the sample, the instrumentation, data collection, and limitations of the research.

### **Purpose of the Study**

The purpose of this study is to identify and describe social skill development opportunities for adolescent players in massively multiplayer online role playing games.

### **Research Questions**

This study was designed to answer the following questions:

1. Are social skills exhibited in the MMORPG environment?
2. Do players have opportunities to practice social skills in the MMORPG environment?

3. Do players have opportunities to learn social skills in the MMORPG environment?
4. Do players experience the social skill learning methodology, namely role-play, modeling, instruction, reinforcement, and guided participation in the MMORPG environment?

### **Research Design**

Descriptive research is utilized in the design of this study. This type of research strives “to describe systematically the facts and characteristics of a given population or area of interest, factually and accurately” (Isaac and Michael 1997, 50). Descriptive research “involves collecting data in order to test hypotheses or answer questions concerning the current status of the subject of the study” (Isaac and Michael 1997, 50). In *Educational Research: Competencies for Analysis and Application*, Gay and Airasian (2000) state, “A descriptive study determines and reports the way things are” (113). Descriptive research was chosen for this study as it is “concerned with the assessment of attitudes, opinions, preferences, demographics, practices and procedures” (Gay and Airasian 2000, p. 275) of a population.

Isaac and Michael (1997) state that descriptive research is used to “collect factual information that describes existing phenomena as well as to determine what others are doing with similar problems or situations and benefit from their experience in making future plans and decisions” (50). The purpose of this study is to identify and describe social skill development opportunities for adolescent players in massively multiplayer online role playing games. Descriptive research lends itself well to allowing the researcher to identify and describe the elements that exist in MMORPGs that may contribute to social skill development opportunities of adolescents as well as identifying social skill learning methodology in the MMORPG environment.

Both quantitative and qualitative data will be used in this study to create a mixed-methods approach. Creswell (2003) observes, “a mixed methods design is useful to capture the best of both quantitative and qualitative approaches---the advantages of collecting both closed-ended quantitative data and open-ended qualitative data prove advantageous to best understand a research problem” (22). A mixed methods approach strengthens reliability and validity of data, and by combining more than one method to study the same phenomenon, triangulation is accomplished, which improves the instrumentation for all data collection. A mixed-method approach was selected for this study because it uses different sources and methods at various points in the evaluation, thereby sharpening the evaluator’s understanding of findings (Sharp & Fretchling, 1997). The mixed-method approach also increases the opportunity for convergence or validation drawn from the data, and exposes the divergent aspects of a phenomenon (Tashakkori & Teddlie, 2003).

Quantitative descriptive research “involves collecting data in order to answer questions about the current status of the subject or topic of study...quantitative descriptive studies are carried out to obtain information about preferences, attitudes, practices, concerns, and interests of some group of people” (Gay and Airasian (2000) pg. 11). Quantitative data are often collected through self-administered questionnaires. In this research quantitative data was collected through a survey questionnaire administered electronically and collected from respondents over the Internet.

On qualitative research Gay and Airasian (2000) write, “Qualitative data seeks to probe deeply into the research setting in order to obtain understanding about the way things are, why they are that way, and how the participants in the context perceive them” (16). They further state, “Qualitative researchers are not concerned simply with describing the way things are, they also

wish to provide insights into why people believe and feel about the way things are and how they got to be the way they are” (18). Qualitative data was collected through naturalistic observations of participants in Massively Multiplayer Online Role-Playing Games.

The qualitative portion of this study is a virtual naturalistic ethnography using systematic observation in a changing observational roles approach. “Naturalistic observation involves observing individuals in their natural settings” (Frankel & Wallen, 2003, p. 451). “Observation is the process of gathering open-ended, firsthand information by observing people and places at a research site” (Creswell, 2005, p. 211) Observation allows the researcher to gather data in the natural setting of the subjects. It is an ideal way to study actual behavior (Creswell, 2005). In a naturalistic study the observers as well as the observed participants remain anonymous. The participants do not know they are being observed and therefore, it is assumed, act naturally in their natural setting.

A mixed method approach was selected for the purposes of this study because it provides the researcher with valuable quantitative and qualitative data that are necessary to identify and describe the elements that exist in MMORPGs that may contribute to social skill development opportunities of adolescents as well as identifying social skill learning methodologies in the MMORPG environment.

### **Population**

Gay and Airasian (2000) define population as “the group of interest to the researcher, the group to which he or she would like the results of the study to be generalized. Generalizability is the extent to which the results of the study can be applied to other populations or situations” (122). The population may be virtually any size and may cover almost any geographical area.

The population for this study was adolescent players of Massively Multiplayer Online Role-Playing Games.

Bruce Sterling Woodcock publishes population studies of MMORPGs on the site MMOGCHART.COM. Comments and references in the literature by industry participants and observers indicate that it may be the most accurate report on gaming population figures available. Mr. Woodcock easily explains the sources of his information and some of the limitation of his data on his site and is referenced in the limitations section of this chapter as well (Woodcock, 2007).

Woodcock's research includes 38 current MMORPGs. A chart of the recent population figures by game with the date the data was collected is located in Appendix D. The worldwide estimate of game players is 12,466,740 (Woodcock, 2007). The nature of the technology allows the large population of players to retain anonymity in the game environment while still being able to build social networks with other players.

The high level of player anonymity presents a demographics challenge on age and culture or nationality. Surveys like those conducted by Nick Yee of the Daedalus Project and industry researchers like Bruce Sterling Woodcock help gain glimpses into the real life makeup of the gaming universe. While many assume the online game world is populated solely by children, surveys indicate that the adolescent population is between 24 and 31 percent with the average player age between 26 and 33 (Yee, 2007 & ESA, 2007).

24 to 31 percent of 12,466,740 players brings the total estimate of world wide adolescent players to between 2,992,017 and 3,864,689. The population for this study is adolescent players of MMORPGs and is estimated at 2.9 to 3.8 million people worldwide.

Creswell (2005) defines the target population as a group of available individuals from the population that have some common characteristics that the researcher can identify and study. The target population selected is adolescent players of Massively Multiplayer Online Role-Playing Games in the United State of America.

“A sample is a sub-group of the target population that the researcher plans to study for generalizing about the target population” (Creswell, 2005, p. 146). The research design required two sample populations.

The sample population for the quantitative portion of this study was 500 individuals who voluntarily responded to invitations to participate in a survey. A third party survey company conducted the anonymous survey. The survey was administered via the Internet to simplify the task of surveying all possible respondents thus increasing reliability of the data. According to Gay and Airasian (2000) simple random sampling is the best way to represent the population, and if there are differences between the population and the sample they are a result of chance, not a result of the researcher’s bias.

The sample population for the qualitative portion of the study was the group of players on-line in the virtual world and in the observable vicinity of the observer at the time of observation. During this study the observer was able to observe from one to twelve players at a time. At the conclusion of the study the observed participants were tabulated and determined to be 216 players.

### **Instrumentation**

The triangulation between quantitative data, qualitative data, and a review of the literature adds accuracy and validity to the study by corroborating the evidence through multiple sources (Creswell, 2005). This study used a questionnaire survey to gather quantitative data and

observation to gather qualitative data. The mixed methods approach was selected for the purposes of this study because it provides the researcher with valuable quantitative and qualitative data that are necessary to identify and describe social skill development opportunities for adolescent players in massively multiplayer online role playing games.

### Survey Instrumentation

The quantitative portion of this study employed a questionnaire survey to collect data from the sample population. Questionnaire surveys are a method of data collection typically used in descriptive research (Gay 1992 reference.) Surveys gather data from a population to determine the current status of the population regarding one or more variables (Gay 1991 reference). Bentz and Shapiro (1998) explain that a survey gives the researcher information with which he can explore the population. Surveys are the most popular method used to collect data in the field of educational research (Isaac and Michael 1995).

The instrument used to collect quantitative data about the research questions was a survey developed and field tested by the researcher. The survey is titled, "A Survey of Adolescent Social Skill Experiences in MMORPGs." To develop the survey, a thorough review of the literature on social skills was conducted. A matrix of social skills variables was created from contemporary social skills researchers. Actions and behaviors were identified as indicative of social skills practice. The actions and behaviors indicative of social skills practice provided the framework to develop the survey questions.

The matrix of social skills variables provided by the review of the literature and representative of the theoretical framework helps assure validity of the instrument. "Validity is the degree to which a test measures what it is supposed to measure and, consequently permits

appropriate interpretation of scores” (Gay, Mills, Airasian, 2006, p. 134). Actions and behaviors identified as indicative of social skills practice were transferred to the instrument as items to observe. The questionnaire survey instrument is located in Appendix E.

### Observation Instrumentation

The qualitative portion of this study used naturalistic virtual observation to collect data from the sample population. The instrument used to collect qualitative data about the research questions was a field notes matrix developed and field tested by the researcher to aid in the capture of observable behavior. The matrix created allows the researcher to engage in systematic observation. Systematic observation requires the observer “to function as an objective and mechanical recording instrument” (Thorndike, 1991, p. 198). The function of the researcher or observer is to simply provide an accurate count of the number of occurrences of an observable act (Thorndike, 1991).

In the execution of observational research the observer must have some lens of focus or direction to use to sift through all the various components of participant behavior (Thorndike, 1997). Thorndike states, “We must be looking at something or for something” (p 299). The focus of the research indicates what “aspects of behavior should be observed” (Thorndike, 1991, p 299). The occurrence and frequency of observable behavior indicative of social skill practice and social skill learning methodology was recorded on the matrix created by the researcher.

The matrix created for the research is titled, “Elements of Social Skill Learning Opportunities.” To develop the instrument, a thorough review of the literature on social skills was conducted. To ensure validity, a matrix of social skills variables was created from contemporary social skills researchers. Actions and behaviors were identified as indicative of

social skills practice. The actions and behaviors indicative of social skills practice provided the framework to develop the matrix. The matrix instrument is located in Appendix L.

### **Data Collection**

A field test or pilot study of a questionnaire survey instrument provides the researcher with clues and ideas brought forth by others or by the researcher through a trial run of the questions and the manner the questions are delivered to the participants. This information can help to refine the instrument and allows for greater reliability and clearer results and findings of the study (Isaac & Michael, 1997).

The qualitative portion of the study required a field test of the survey questionnaire instrument. A field test of the survey was performed on experienced players of MMORPGs. Revisions and corrections were made to the survey based on recommendations from the pilot study. The performance of a pilot study adds reliability to the survey and the study.

The quantitative portion of the study required a field test to ensure the effectiveness and practicality of the Elements of Social Skill Learning Opportunities matrix. The researcher employed two adult observers to assist with the observation field test. The observers were trained in the use of the Elements of Social Skill Learning Opportunities (ESSLO) matrix. The researcher and the volunteer observers conducted a test observation of 20 minutes of game play in the game World of Warcraft. The researcher and observers each viewed a separate screen displaying the same scene of a player playing the game for 20 minutes. The researcher and the observers used the matrix to record occurrences and frequency of behaviors as well as social skill learning methodologies listed on the ESSLO matrix. At the conclusion of the test a debriefing session allowed the researcher and the observers to discuss the strengths and weaknesses of the instrument. Corrections and revisions were made to improve ease of use and clarity of function.

The pilot test of the observational notes matrix, the Elements of Social Skills Learning Opportunities matrix, also included a test for inter-rater reliability. “Inter-rater reliability is a procedure used when making observations of behavior. The observers record their scores of the behavior and then compare scores to see if their scores are similar or different” (Creswell, 2005, p. 164). “If the responses are the same, the indication is that the judgments are reliable” (Thorndike, p. 297). This method works to negate “any bias that any one individual might bring to scoring” (Creswell, 2005, p. 164). The three ESSLO matrices were compared for commonalities and differences. Significant differences were explored in conversation with the group and some items or identified practices or behaviors were more clearly defined.

### Quantitative Data Collection

The quantitative portion of the study surveyed 500 individuals who voluntarily responded to invitations to participate in a survey. This survey was administered via the Internet to simplify the task of surveying all possible respondents thus increasing reliability of the data. According to Gay and Airasian (2000) simple random sampling is the best way to represent the population, and if there are differences between the population and the sample they are a result of chance, not a result of the researcher’s bias. Each respondent of the survey responded to an invitation to participate thus providing a random sample. Invitations to participate were released to several online forums and communities frequented by MMORPG players. General announcements and postings were prepared and sent via email, fax, and posting to online gaming forums to announce the survey, ensure the anonymity of the participants, and invite players to participate. A copy of the announcements and postings can be found in Appendices F through J.

### Anonymity of Survey Participants

Due to the age of the participants, great care was taken to ensure their safety and anonymity. The demographic information in the survey was designed to collect data only on age and amount of game play. No personally identifiable characteristics such as name, location, or email of participants was collected by the researcher or the third party online survey company. The third party online survey company, Survey Monkey, was employed to separate the researcher from the respondents and ensure total anonymity of the respondents. The survey company does not collect personal data from the respondents and employs multiple layers of security that is tested daily by a third party Internet security service. A copy of the Survey Monkey Privacy Policy and related information can be found in Appendix K.

### Qualitative Data Collection

The qualitative portion of this study engaged naturalistic observation to gather data. Naturalistic observation is ideal and almost required for research in MMORPGs. The objects of observation in on-line role playing games are avatars. Avatars allow players to remain totally anonymous as to name, age, race, appearance, and any other identifying characteristics. One may even argue that the object of observation in virtual naturalistic ethnography is not people but avatars being controlled by people.

This study incorporated a changing observational roles approach to allow the researcher more freedom to gather data in the study environment. “Changing observational roles is one where researchers adopt their role to the situation” (Creswell, 2005, p. 212).

At times in the study the researcher adopted the role of non-participant observer. An observer who visits the environment and records notes about observations without becoming involved in the activities of the participants is a non-participant observer (Creswell). The

researcher in this role is an outsider who locates himself or herself near the subject for the study to watch and record observational data. This approach may be advantageous when the researcher has not yet been accepted into the group or community as a participant, or when the researcher wishes to record large amounts of data that would be precluded by participation.

The changing observational roles approach also allows the researcher to transition into a participant observational role. “A participant observer is an observational role adopted by researchers when they take part in activities in the setting they observe” (Creswell, 2005, P. 212). A participating researcher engages in activities at the study site while also collecting data.

The observations in this study were conducted in a virtual environment. The researcher controlled a character or avatar in the MMORPG and interacted with players to conduct participant and non-participant observations. This approach to research in virtual environments is called virtual ethnography.

“A virtual ethnography is one that fully immerses the ethnographer into the consensual reality experienced by groups of people who use computer-mediated communication as their primary, and often only, means of communication. As such, the online or virtual persona of the participants are the main focus of the ethnographer. Generally, researchers have wanted to focus on the person at the keyboard, a virtual ethnography reverses this and works instead with the persona that has been projected into cyberspace by the typist. This is not the only way to do fieldwork via the Internet but it is useful and it helps to realize that when we do participant observation we usually do it in the same medium in which the culture we study is communicated” (Mason, 1999, p. 63).

While some researchers may dispute the methodology of virtual ethnography Mason defends the approach. “As with any ethnography it is the detailed, systematic, and exhaustive participation within the group and building of relationships over time that allow the ethnographer to build, with the help of the participants, an account of the culture created within that group” (Mason, 1999, p. 63).

The researcher used the Elements of Social Skills Learning Opportunities matrix to record observable behavior while conducting observations in the virtual worlds. The researcher conducted observations in three popular virtual spaces: World of Warcraft, Second Life, and Everquest. These three games were selected because of their popularity, contributions to the genre, and their generalizability to the genre.

The researcher established a character in each game and learned how to control the character and navigate in the game. While in the early phases of learning how to play or participate the researcher employed non-participant observation to record observable actions and behaviors indicative of social skills practice. The researcher used the Elements of Social Skills Learning Opportunities matrix to aid in recording the observations.

When the researcher felt comfortable enough with character control and game navigation he changed to a participant observer role and engaged other players in the game. The researcher informed the other players that he was a social researcher and asked if he could spend time with them in the game. He continued to employ the Elements of Social Skill Learning Opportunities matrix to record behavior. The researcher observed from one player to six players at a time and participated in game activities with players to gain insight and understanding.

The researcher conducted 12 observations of 20 minutes in length for each of the three online environments. The Elements of Social Skill Learning Opportunities matrix was used to record behavior during each twenty-minute period. A total of 36 twenty-minute observations were made for a total of 240 minutes, or four hours, in each virtual world and a total of 720 minutes or twelve hours for all three virtual worlds combined.

#### Anonymity of Observation Participants

By the nature of the MMORPG environment and technology, personally identifiable information is protected and not available to the observer. The observer did not collect any personally identifiable information and did not share any personally identifiable information with participants.

Names of players in the game setting are not the real names of the individuals controlling the character. Regardless of this fact, to ensure anonymity of player, no character names were collected in the research process.

Communication in the game is done by means of an instant message chat window that allows players to write text to one another during game play. Players are addressed by their fictitious character names and since the exchange is inside the game no personal email or contact information need be shared. Players are protected from possible malicious behavior through the strict anonymity these features offer.

### **Data Analysis**

The survey responses were downloaded from the online survey provider and placed in a secure database. Strict confidentiality was maintained as no names or identifiable information was collected by the survey. All printed survey material was stored in a locked and secure location.

The quantitative data was collected and organized in tables and charts for visual comparison of variables and responses.

The observational data was compiled into a database and stored in a secure manner. Strict confidentiality was maintained as no names or identifiable information was collected during the observations.

Where possible, the observational data was also organized into tables and charts for visual comparison of variables and responses. Analysis of qualitative data seeks to organize and categorize responses by themes and threads (Fraenkel & Wallen, 2003). Correlations and patterns were identified and related to the literature.

The responses from the quantitative survey, the qualitative observations, and the literature review were triangulated to confirm the results of the study and increase reliability throughout the data. Frequency distributions for qualifying data were created and displayed in tables and frequency polygons to aid with visual analysis of information.

## **Limitations**

### **Limitations of Population Data**

Unlike other forms of media who have third party population audit organizations, game companies and employees self report their player numbers. Woodcock notes that, in his experience, none of the claims made by companies seem highly inflated and that since all are equally capable of lying, it appears that the figures are fairly accurate (Woodcock, 2007).

“There is no universal consensus on what constitutes an active subscriber” (Woodcock, 2007, pg. 1). Many companies offer a 30-day free trial. Woodcock explains that some companies may be reporting these players as active subscribers while other companies are not. He also notes that many players rent playtime on an hourly basis from a third party vendor. These hourly players are not reported by the companies because they do not fall into the active subscriber category.

“A ‘subscriber’ is generally counted as an individually numbered account currently in a company’s billing system” (Woodcock, 2007, pg. 1). Some individual players may maintain multiple accounts and be recounted for each separate account (Woodcock, 2007).

Given these limitations to the population count we can note that some players who play are not getting counted and some players who play are getting counted more than once. We have no way of knowing if this discrepancy is in enough balance to average a zero effect. However, with the large population figures we are dealing with, a small margin of error in the count will have little effect.

Woodcock obtains population figures for his report from several sources. He researches official corporate data, corporate press releases, corporate documents, news articles, public comments, anonymous sources inside game companies, and estimates based on supporting evidence (Woodcock, 2007).

While this study focuses on the adolescent player, limitations exist when questions of age are considered. As has been earlier stated, due to the inherent anonymity of the avatars in the game, the age of each player is not known. However, population data indicates that 24 to 31 percent of the observed players were adolescents aged 12 to 18 years. In the survey, a question was asked regarding age and only data from participants indicating adolescent age, 12 to 18 years, was included in the study. However, as with any self administered survey, it is possible that a participant erroneously or maliciously wrongly indicated an age of adolescence and thus skewed the results.

### Limitations of Participants

The limitations of this study include collecting survey data only from game players who agreed to participate in the study. Isaac and Michael (1997) explain that surveys are reactive in

nature as the participants must react to a specific set of questions. This method of research only gathers data from participants who are accessible and willing to cooperate; the survey or observation opportunity could make the respondent feel set apart from others and could cause artificial responses or behaviors. The respondent could be acting or responding to how they think the researcher would want them to. The survey responses are based on personal experiences and perceptions which may be skewed due to reactive methods in data gathering, the time passed since the experience, and the honesty of the responses. This study focuses on the social skill learning opportunities and elements that may exist in Massively Multiplayer On-line Role Playing Games only and does not affirm that the virtual world environment is the only place the participants have opportunities to learn or practice social skills.

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