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The Implications of Virtual World Technology for K-12 Students in a Foreign Language Course of Study

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THE IMPLICATIONS OF VIRTUAL WORLD TECHNOLOGY FOR K-12 STUDENTS IN A FOREIGN LANGUAGE COURSE OF STUDY

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The use of virtual world technology for language instruction is a recent development in education. The goal of this study was to provide a functioning 3D environment for German language students to experience as avatars. The student's impressions, attitudes, and perceptions of this learning activity would be recorded and analyzed to see if this might be a fruitful way to study elements of the German language in the future.

This study examined the use of a virtual world language activity for high school students who are studying German. The students entered a virtual world village called Plauderstein as avatars and interacted in role-playing activities to practice their German language skills. There were 52 students in three grade levels involved in the study which took place over three weeks in a high school in central Pennsylvania. The students participated in four role-playing activities in different locations (a restaurant, hotel, train station, and campground.) The researcher conducted interviews with some of the students from each class after each role-playing activity was completed. When all the activities were complete, the researcher administered a survey to the student subjects. The results of the study showed that the students felt that this sort of learning activity in a 3D world was challenging and fun, and that they believe it is a useful adjunct to typical German classroom activities.

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CHAPTER ONE

INTRODUCTION

Background

Virtual world technology is a recent development brought about by advances in computer hardware and software technology since roughly 1987 when computer pioneer Jaron Lanier coined the term "virtual reality." The term refers to interactive three dimensional landscapes which are typically navigated through the use of an avatar (Biocca, 2006). As with any development in technology, there were precursors to this new communication medium in computer science in general and in the development of military technology, and the new medium followed a curve of adoption typical of a nascent communication technology (Lanier & Biocca, 1992; Rogers, 1995). The video game arcade, video game console, and personal computer game industry adopted this technology which began with two dimensional games played on video screens in the 1970s (LaViola, 2008). In the decades since then, 3D video games have become increasingly popular, pervasive, influential, and profitable (Squire, 2003). Video games surpassed films as the most lucrative entertainment medium with 24.7 billion dollars in sales in 2011 (Tucker, 2012).

Since the inception of virtual world technology that allows participants to interact as avatars in a simulated 3D environment, educators have attempted to exploit this new technology as a new mode of instruction. One early example, the River City Project at Harvard University, was funded by a grant from the National Science Foundation. The River City Project explored situated learning in a virtual world science simulation (Dede, Nelson, Ketelhut, Clarke, & Bowman, 2004). Others followed-up that project with studies

exploring the link between video game-like environments and learning (Barab, Thomas, Dodge, Carteaux, & Tuzun, 2005; Gee, 2003).

Additional studies, which examine virtual world education, focus on the link between language learning and virtual worlds (Gee, 2004). Language scholars affiliated with universities, government agencies, and independent language teaching entrepreneurs have done research studies in this field (Deutschmann, Outakoski, Panichi, & Schneider, 2010; Schneider & Panichi, 2009). Teaching a second language (typically English) to adults is the focus of many of these studies (Schwienhorst, 2002). However, one interesting area, which has received less attention, is the teaching of language to K-12 children in virtual worlds. Mckeague and Leidman (2010) noted that both young children and high school students love to participate in virtual world game environments, and young students also learn language in some ways more easily than adults; therefore, it might be possible to combine children's enjoyment of video games with language learning in an interactive environment.

This dissertation examines a learning simulation which is both enjoyable for high school students and helps them learn German. This study focuses on the use of a virtual world to conduct role-playing activities for learning foreign languages. Role-playing activities are typical elements of a foreign language course of study which often are done at the end of a language textbook chapter for reinforcement of vocabulary acquisition related to a specific task. Students perform roles as characters in a script, such as purchasing a train ticket for a journey in a foreign country or making hotel reservations.

Need for the Study

The need for a study on new methods of language learning in a 3D simulation is highlighted by traditional language studies scholars who note that children gain a number of cognitive benefits from becoming fluent in a second language. Carlson and Meltzoff (2008) note that students who have learned a foreign language develop useful technical skills related to communication. The students gain advantages in the job market due to the ability to interact with customers or clients from other countries. Weatherford proposed that students who learn a second language would be able to enjoy travel abroad with less frustration and gain a greater appreciation for other cultures (Weatherford, 1986). There are, therefore, tangible economic, social, and cultural benefits to the acquisition of a second language.

However, there are obstacles for both children and adults in the learning of second languages. One problem which students experience in attempting to learn a foreign language is language anxiety (Horwitz, Horwitz, & Cope, 1986). Language anxiety is a term used to describe the fear which students experience in speaking out loud while doing language exercises in a foreign language classroom (Shrum & Glisan, 2009). (Note: the expression "speaking out loud" refers to a specific type of language learning activity, namely, the reciting of foreign language elements in the classroom.)

Felix (2003) points out that virtual worlds can provide students with more anonymous forms of social interaction, thereby reducing language learning anxiety. Because a measure of anonymity can be maintained by students participating in a virtual world as avatars, Phillips (2008) believes these environments can be a possible form of

therapy for children who suffer from autism spectrum disorders. Researchers Zheng, Young, Brewer, and Wagner (2009) used a survey coupled with an analysis of standardized test scores to conclude that Chinese students improved their confidence and self-efficacy in learning English doing joint language learning activities in a virtual world with Australian students. The researcher in this study felt that these gains in confidence should be explored further with additional studies and chose German language instruction for this particular study.

Researchers in Europe and Asia are studying the usefulness of virtual world environments for learning second or third language skills. The learning of foreign languages is a necessity for those engaged in global communications both in business and education. Learning a foreign language allows practitioners in those fields to interact with people from other countries. The study of foreign languages is important in Europe due to the diversity of languages among the nations who are members of the European Union. A large European study group the "Avalon" (Access to Virtual and Action Learning Live on Line) project was funded by the European Commission for 2009 – 2010 to explore opportunities for language learning in the virtual worlds of Second Life and OpenSim (Swertz, Panichi, & Deutschmann, 2010). This project used both 2D and 3D language learning activities, specific teacher training in computer aided learning, and sought to develop best practices standards for education in language. As part of this study, Molka-Danielson and Panichi (2010) found that language learners were more willing to speak out and make mistakes because they were avatars. They also found that the students were able to focus on spoken language more easily when they could see the speaker (as an avatar) compared to other "voice only" language learning activities, and they found that the

participants felt a sense of community while interacting in the virtual world. Their methods were descriptive in nature based on observation and interviews of students in Second Life.

In China there is an emphasis for students to learn English as a language for education and commerce, and language learning in virtual worlds can provide a format for interactive practice for those attempting to learn new English language skills. Zheng, Young, Brewer, and Wagner (2009) note that in China the economy is increasingly "information-driven" and in order to compete in a global economy students have to learn English at an early age (Zheng, Young, Brewer, & Wagner, 2009, p.2). Zheng and his research team proposed that one possible option for learning English is through the use of virtual world technology.

The examples of virtual world studies in Europe and China show promise for a wider application to other countries and language groups. This proposed virtual worlds study is needed to further advance the field because there are few empirical studies on this topic, particularly in the United States.

Statement of the Problem

This study is a preliminary attempt to meet the challenge of bringing students into an interactive learning simulation in which language learning can take place for students of school age, (i.e.., in grades K-12.) It will focus on one specific activity currently used in language learning curricula: role-playing games. (Shrum & Glisan, 2009). It will also examine whether this learning activity can be enhanced by having it take place in a 3D virtual world environment where both the teachers and students participate as avatars.

One particular topic for this proposed study is the application of theories related to the constructivist approach to learning which are built upon the perspectives of childhood development theorists Lev Vygotsky and Jean Piaget. This study also examines the work of other researchers who followed the lead of Vygotsky and Piaget by refining and expanding their theoretical perspectives. It includes more modern iterations of constructivism, such as activity theory and theories of intercultural communication, which spring from the same root. This study seeks to apply these theories to the practice of learning in a virtual world with a teacher and other students. An example of this activity in the theories of Vygotsky would be the concept of what he termed "scaffolding," whereby the teacher interacts with the student to make progress with the acquisition of basic learning elements, and then the student shows signs of further progress while working alone or with peers (Cole, Scribner, & Souberman, 1978).

Purpose of the Study

The primary purpose of this study is to determine if there are benefits for learning a foreign language in a computer- mediated environment. It examines the virtual world environment to see if it provides a life-like setting for learning elements of language learning. A specific element of some language learning curricula is role-playing games. This learning activity has been used in regular classrooms, but in this study it takes place in a simulated virtual world location. This study seeks to determine if changing the environment from the classroom to a virtual world setting has an impact on the attitudes and perceptions of German language students.

An initial step in such a process is to ensure the basic operation of the virtual world environment necessary to facilitate language learning for students. Once that is complete, the students can participate in the language learning village and data can be collected and analyzed. The purpose will be to determine if the students felt engaged and challenged by the role-playing group activities, and to see if they feel this is a positive adjunct to other language learning activities which are part of their German II, III, and IV classes.

Target Language

The German language is appropriate for this study because of the availability of an experienced German language instructor who has volunteered to try out some of the virtual world activities using students from her classroom. The German instructor who volunteered for the study maintains a good working relationship with the administration at her school and believes they would welcome an opportunity to improve their local German language courses through the implementation of this new technology. She developed curricula for the study of the German language which was certified as meeting ACTFL (American Council of Teachers of Foreign Languages) standards.

The ACTFL is a nationally recognized association which sets standards for foreign language competency with financial assistance from the U.S. Department of Education. The guidelines include levels of proficiency for speaking, writing, reading, and listening, such as superior, advanced, intermediate, and novice. These are broken down into subcategory levels to further distinguish the proficiency of individuals on the scale. This provides a framework for competency in language instruction which can be assessed quantitatively. The German teacher who volunteered for the study meets these language

standards in her course evaluations and also her language curricula are currently accepted as credit for college level coursework and her more advanced German classes are certified as "AP German Instruction."

Both the school principal and the head of school technology expressed an interest in learning more about this learning activity and they are willing to allow students to participate in a study of this type. The research project was approved by the school superintendent and by the school board executive committee. The researcher also studied German at the graduate school level. Though not completely fluent in the language, he is be able to follow conversations in that language and observe students interaction in the virtual world.

Target Virtual World

Since 2007, Linden Labs 3D world "Second Life" is the virtual world that educators used the most (Warburton, 2009). There were advantages to using Second Life in the past, which included low cost, availability, and good functionality. However, there were (and are) problems with Second Life due to the interaction of students or children with adult "strangers" who visit the world as avatars, and with rising costs for educational access (Korolov, 2011). Because of these issues, a virtual world "open-source" project called "OpenSim," is becoming increasingly attractive as an alternative virtual world to Second Life. OpenSim is a virtual world which is very similar to Second Life in design and functionality, however it is far less expensive to maintain a virtual presence in OpenSim (Sequeira, 2009). Some recent costs for a region (a plot of 16 virtual acres) in Second Life are a purchase price of $1000.00, with a monthly maintenance fee of $295.00.

These prices are rough estimates only since there are a bewildering variety of options of the types and locations of land offered in Second Life, and the actual cost is related to whether a buyer leases from the developers of Linden Lab or a third party vendor, and it also depends on whether the buyer is a regular (free) member of Second Life, or a "premium member," which is based on a monthly fee (Rymaszewski, 2006) The cost of operating a sim in OpenSim is typically less than $50.00 per month for a small island which is stored on a remote server (Korolov, 2012). Most of the vendors include free setup and some support for this fee; others charge an initial setup fee, typically less than $200.00. Some educational institutions have the technology and expertise to do their own hosting and use their own servers, which makes accessing OpenSim for those schools basically free.

The two main reasons why the virtual world OpenSim was chosen for this research study are: reduced cost and the ability to restrict access to what is essentially private (and privately owned) virtual land. One other factor is the availability of a virtual world simulation which was used in Holland for role-playing activities related to education (Zwart, 2012). This simulation was built by an educational consultant named Nick Zwart, who heads a small consulting firm called "3DLES" which stands for "3D Learning Experience Services." He offered technical assistance to make it possible for student subjects to enter the world, obtain avatars suitable for high school age students, and participate in a small town environment which can be modified slightly to work as a location for role-playing activities in a German language simulation. This is typical of the range of educational and technical support services which Mr. Zwart supplies as a service to European high schools and universities as a freelance consultant (Zwart, 2012).

Significance of Study

This study is significant because it creates a learning simulation for children that will enable the students to participate in learning activities which are engaging and fun. It employs a virtual world environment to enhance the effectiveness of role-playing activities which are already a part of language learning curricula. However, unlike traditional classroom methods, this study has aspects of both the environment of video games (which the current generation of students find appealing) and other interactive elements that allows the students to engage in social interaction and provide a cross-cultural learning experience for them.

The study also is significant because it examines the elements of the 3D learning experience from both a qualitative and a quantitative (mixed-methods) approach. Hew and Cheung (2010) found that the literature and research in the field of virtual worlds' education with K-12 students is primarily devoted to studies based on opinion, on conceptual or theoretical speculation, or on non-empirical descriptions of programs of learning. They noted that there are very few empirical studies, and that only 2 out of 470 current studies used rigorous quantitative approach. Though Hew & Chung's study was completed three years ago, their observation that most of the studies on this topic are opinion or speculation still holds true,

Building on some of the previous work noted above, this proposed research study will attempt to offer empirical analysis to the topic through the use of a mixed-methods approach. It will be limited to some extent due to the constraints of time and cost to being a descriptive study with a relatively brief duration. However, it will provide additional

empirical and qualitative information and seek to expand the application of theoretical approaches relating Vygotsky and Piaget's theories of learning to the topic of learning in virtual worlds.

Definitions

The terms which are used in the field include *avatar*, a 3-D representation of a person. An avatar can take a human form, or be in the shape of an animal or robot. It can also be "cross-gender" if desired, i.e., a male can decide to portray himself as a female, or vice-versa. *Virtual Worlds*, *Synthetic Worlds* or *Sims* are representations of 3D worlds which are created by using computer technology. A person can walk around as an avatar (or fly) and visit these landscapes as if they were actual locations, with appropriate weather, lighting, and other elements of simulated reality. *Bots* are avatars which are have scripted actions or routines and are typically part of a game or simulation. *Rezzing* is slang for the process over time by which objects appear in a virtual world. The term was derived from the word *"De-rezz"* which was used in the movie *Tron* in 1982 (Fishwick, 2002). For example, it might take a detailed cityscape scene much longer to *Rezz* than a simple grassy field. A *N00b* (which is spelled with zeros – not with the letter "o") is the name given to a person new to the virtual world or game environment. The expression *in-world* refers to an activity done in a virtual world or game environment, i.e., not in the "real" world.

Additional terms which are used in describing virtual worlds are acronyms such as the following: MMORPG (Massively Multiplayer Online Role-playing Game), MUVE (Multi User Virtual Environments), MMOG (Massively Multiplayer Online Games), ILS

(Immersive Learning Simulations), ILE (Immersive Learning Environments). Video game enthusiasts tend to employ two acronyms to describe games: MMO's (Massively Multiplayer Online games – the sorts of games in which players on teams compete or interact) and RPG's (Role-playing Games - games in which a player participates in a scripted sequence of game activities.)

There are also a number of acronyms related used relating to use of computers in education in general such as: CALL (Computer Assisted Language Learning), and CAL (Computer Aided Learning), as well as the expressions E-learning and Online learning. It should be noted that the word "immersive" as used in the phrase "Immersive Learning Simulation" is used somewhat ambiguously in other contexts by vendors of commercial language learning software and other forms of educational software. Since the definition of the word is not clear, it is generally avoided as a descriptive term in this study.

Terms specifically related to learning theory draw from the disciplines of behavioral and developmental psychology, philosophy, instructional design, and to a lesser extent, political science. *Constructivism* is the term primarily associated with the theories of Lev Vygotsky, which relates to his view that learners "build" or acquire knowledge through their interaction with the world around them. *Cognitivism* describes the mental processes related to processing knowledge and information, and it sometimes employs models drawn from the field of computer science to describe memory storage and problem solving. Piaget's theory has been termed *Cognitive Constuctivism* (Lawson, 2002). This can be contrasted to Vygotsky's theory which is generally termed *Social Constructivism* (Powell & Kalina, 2009).

Vygotsky employed the term *scaffolding* to describe the way in which a learner is actively assisted in the acquisition of higher order thinking and conceptual development by a teacher or mentor (Donato, 1994). *ZPD* is an acronym which stands for Zone of Proximal Development. This expression (which relates to his concept of scaffolding) was used by Vygotsky to describe the distance (proximity, hence *proximal*) between actual development in the ability to solve problems independently and the potential the child has to solve problems with the assistance of an adult or more capable peers who supply assistance.

Research Questions

The remainder of this dissertation will examine the following two research questions:

(RQ1): What is the experience of interacting in a virtual world like for the students who participate?

(RQ2): What are the attitudes and perceptions of K-12 students to virtual world role playing activities in a German language course of study?

CHAPTER TWO

LITERATURE REVIEW

Introduction

Teaching foreign languages in virtual worlds shows promise as a possible new way to teach language, but it has not yet been evaluated in a comprehensive manner by researchers. As noted previously, this is most likely because the field is still in its infancy with the most popular virtual world, Second Life, being less than ten years old (Rymaszewski, 2006).

The literature on the topic of virtual worlds addresses several themes. Researchers and theorists attempt to describe what these computer generated environments are like, and how they might be used in education. There is also discussion about the roles of artificially created human representations in the medium (commonly called avatars) and how users relate to these computer generated personae. This naturally leads to comparison of virtual worlds for learning with commercially available media such including videogames and simulations. One recurring topic in this discussion is whether videogames have a negative impact on frequent gamers, and if this could also be a problem if the medium is used for educational purposes.

To address these topics or themes, a number of theories, drawn from behavioral and developmental psychology, as well as from learning theory, are used to explain the interactions which take place in virtual reality environments, and how these might be understood to promote learning. The literature on the topic of virtual worlds additionally

examines the impact of computer-mediated communication and looks at the benefits and constraints of this new technology.

Theoretical Foundation

Lev Vygotsky and Jean Piaget provide helpful frameworks for understanding issues and concepts related to this inquiry. Vygotsky looked at historical and social factors which relate to the acquisition of knowledge. Piaget examined the activities of individual learners and their stages of development in solving problems and developing understanding and competency. The researcher includes both theorists in order to determine what elements of their learning theory appear most clearly in the virtual world learning activity which is being studied.

Several dominant themes recur in the current scholarly literature devoted to the topic of the developmental psychology of Piaget and Vygotsky. Both men spend a large portion of their time and energy in the attempt to understand how children learn and develop. Both are characterized by most of the literature in the field (though not all) as constructivist in outlook, based on their views that children develop and "construct" knowledge elements of ever increasing complexity as they mature. Another theme in the literature deals with how the observations and theories that these two men produced continue to influence the theoretical basis for the fields of education and instructional design. Whether they have been called cognitive constructionists, socio-historical theorists, or classified in other ways, their theoretical contributions continue to inspire lively discussion in the literature. This also is reflected in the ongoing philosophical and political debates which grow out of analysis of their epistemological positions. Because

they mark out a clear territory in the debate on how knowledge is acquired, they also pique interest in questions related to the philosophical and political underpinnings of these theories.

Development of Learning in Children

Both Vygotsky and Piaget take the development of the child as the starting point for their theories concerning childhood development and for a philosophy of instruction. Observations of children beginning at an early age and progressing until maturity focus on the stages which children pass through as they learn to interact with their world. Both theorists place emphasis on understanding elements of self-regulation in learning. Piaget examines the child as an individual learner while Vygotsky places more emphasis on the social interaction with other students and particularly with the instructor in his development of a system describing how children grow in their apprehension of knowledge.

Piaget

Jean Piaget developed his system of the development of mind and cognition originally based on observations of behavior of children. Piaget's early work was at an intelligence lab in Paris. He extended the work of Albert Binet by applying intelligence tests to children. Piaget noticed that children who were given intelligence tests committed errors different than the mistakes made by adults and that they committed similar errors according to age. Piaget examined language used by the students on tests and noted the underlying patterns of errors which the children committed. These errors were not random, but followed distinct patterns according to the child's age (Piaget, 1923). In

looking at these errors (and to use the Freudian term, "slips") Piaget did not follow the standard Freudian psychoanalytic approach which he had learned, and which he had presented to audiences in Paris at seminars on the topic. Instead he analyzed these mistakes on the children's tests by his own methods. He employed methods related to his studies in logic and philosophy and not related to underlying Oedipal or subconscious motives as favored by Freud and those who followed him (Harris, 2010).

Piaget started out as a biology student, studying the adaptive variations of mollusks at different altitudes in the Alps (Boring & Lindzey, 1967). In doing his first observations of children, he applied many of the methods of classification to his new subject matter: the cognitive abilities of children. From his observations he concluded that children began with lower forms of cognition and were unable to grasp certain higher order mental concepts. He first discussed this in terms that were accepted in the psychoanalytic work of Bleuler and Jung, positing that children begin with what was termed "autistic thinking," i.e. the non-verbal and pre-logical thinking characteristic of infants, compared with the more advanced states of logical or scientific modes of thought. At this point, Piaget notes, "In the child, autism is everything. Later, reason develops at its expense" (Piaget, 1920) as translated by Harris (2010, p.115.)

This insight led Piaget to further study of what he termed "autistic thought" which is related to the subject of the child's "ego-centric language" at the *Maison des Petits de L'Institute Rousseau* in Geneva, Switzerland (Piaget, 1923). He developed his ideas more fully concerning how a child moves form autistic (pre-logical thought) to a more objective view of reality. Harris notes, "Piaget accepts without demur the psychoanalytic assumption that thinking that is not oriented to reality (play, fantasy, and imagination) can

be characterized as pre-logical and has no useful role to play in an objective analysis of reality." This view of Piaget's can be contrasted with that of Vygotsky who saw a clear connection between a child's use of toys in play and his development of higher order thought processes. Early in his career, Piaget sees these early stages as something to leave behind when the child matures. Put simply; for Piaget, play, fantasy, and imagination must give way to logical and scientific thinking. The researcher will attempt to further explores this linkage between play and a fantasy world and examine whether it can be determined if when students play in a virtual world if it appears to be an aid to learning, or an obstacle to learning as theorized by Piaget.

> It could be argued that Piaget changes this view as he continues his research and develops a more sophisticated view of the stages of cognitive development. Piaget theorized that there were four stages to a child's cognitive development.
>
> The sensori-motor stage: from birth to two years. At this stage the child uses his or her senses to experience the world. This is the ego-centric phase. The pre-operational stage: from age two to seven years. This stage is characterized by the use of symbolic thought and language, while ego-centrism begins to wane. The concrete operational stage: from age seven to 12 years. Logical thinking begins to take place – these include classifying objects and understanding time and numbers. The stage of formal operations: true logical and mathematical thinking –including being able to reason about hypothetical situations. (Piaget, 1954).

But as late as 1966, Piaget continues his disjunction between thought relating to perception and thought of a higher logical order. He concludes his section on the development of perception in children by writing:

> Generally speaking, it is therefore impossible to maintain the concepts of intelligent thought are simply derived from the perceptions through abstraction and generalization. In addition to perceptual data, concepts incorporate specific constructions of a more or less complex nature. Logico-mathematical concepts presuppose a set of operations that are abstracted not from the objects perceived but from the actions performed on these objects, which is by no means the same. (Piaget & Inhelder, 1969, p.49)

Piaget contended that children move from the lower stages of development all the way up to formal operations conducted in the hypothetical realm. At this point the learner could understand and manipulate abstract ideas. This type of thinking was termed "idealistic" – at the realm of ideas considered without relation to concrete, specific instances. An example would be the algebraic proposition "if P then Q." For example, "If someone gets good grades (P), then he studies hard (Q)." But can a person get good grades if they don't study hard? He noted that children who are still at the lower levels of reasoning have difficulty answering that sort of question. This syllogism would be disproven if it is possible to find someone who got good grades (P) but didn't study hard (Q). Piaget thought that children who have not achieved the level of formal operations will not be able to master the syllogistic reasoning necessary to process a question of this sort. This type of hypothesis testing is only typical of learners who have reached the level of "formal" operations. (Piaget & Inhelder, 1969).

This discussion of formal operations shows in part the way in which Piaget used his training in logic to formulate his theory about the levels of development. It shows how Piaget does not focus on the underlying hidden sexual causes as Freud did when he discussed levels of development. Instead, Piaget's theories are built on a system of logic and philosophy quite different from Freud's psychoanalytic approach (Piaget, 1962).

From his observations of children's behavior he theorized that children would reach a sense of "equilibrium" when they had mastered the elements necessary at a given stage, and then they would face new challenges and difficulties. Piaget wrote that the learner would face:

> Conflicts and crises and re-equilibrations, for the formation of personality is dominated by the search for coherence and an organization of values that will prevent internal conflicts . . . it is impossible to interpret the development of the affective life and of motivations without the all-important role of self-regulations, whose importance, moreover, all the schools have emphasized, albeit under various names. (Piaget & Inhelder, 1969, p.159)

This brief passage gives a sense of Piaget's view of the learner as an active contributor to their own development. He uses his term "equilibration" for that process by which the child struggles to overcome conflicts and challenges. This is a dialectical process which Piaget believed forced the child to continue to progress "by a sort of law of evolution" (Piaget, 1954, p.352). The child encountered conflict, sought equilibrium by learning and acting in their environment and thereby made progress in learning and understanding his or her world. This active role for the learner as one who "constructs"

knowledge stands in contrast to more passive theories of learning such as the behaviorist approach which was in vogue at the time Piaget's theories became more widely known in the 1960's and later. It is also an element of learning theory which Piaget shares with Vygotsky.

In this study, the researcher examines Piaget's theory of the process of equilibration in order to see if it can relate to the challenges which high school students face when they are in a virtual world trying to learn new German language skills. The study attempts to provide challenges for the students and see if the students make progress in learning by means of the struggle to overcome the conflicts and challenges which they encounter in the simulation.

Vygotsky

One of the key elements in the constructivist approach of both Piaget and Vygotsky is the belief that children explore the world around them starting as infants and build knowledge through interaction with the world they inhabit. Vygotsky (1978) explored this topic extensively in both his individual articles on the subject and from selections of his writings which have been included in *Mind in Society, the Development of Higher Psychological Processes.* The articles in this collection were translated into English in 1978. In addition to these essays, Vygotsky's (1934) book *Thought and Language*, is the other primary source for his writing on the development of learning in children.

In his early studies Vygotsky observed children and noted the ways in which they use symbols while playing. Initially, children can only make a direct connection between

what is thought and what is seen, "*it is impossible for very young children to separate the field of meaning from the visual field* because there is such intimate fusion between meaning and what is seen" (Vygotsky, 1925, p. 97, emphasis in original.). But as a child matures and approaches pre-school age, his or her ability to separate what is seen and what is thought changes. An example might be a child who uses an object such as a stick to portray a pretend toy. Vygotsky explains:

> In play thought is separated from objects and action arises from ideas rather than things: a piece of wood begins to be a doll and a stick becomes a horse. Action according to rules begins to be determined by ideas and not by objects themselves. This is such a reversal of the child's relation to the real, immediate, concrete situation that it is hard to underestimate its full significance.
>
> Play provides a transitional stage in this direction whenever an object (for example, a stick) becomes a pivot for severing the meaning of horse from a real horse. The child as yet cannot detach thought from object. The child's weakness is that in order to imagine a horse, he needs to define his action by means of using "the-horse-in-the-stick" as the pivot. But all the same, the basic structure determining the child's relation to reality is radically changed at this crucial point, because the structure of his perceptions changes. (Vygotsky, 1925, p 97-98)

Young children play with objects and use them as tools and symbols; as they mature, the symbols become transformed into ideas. Vygotsky's attention to the use of tools is an aspect of his embrace of the role tools play in the thought of Marx and Engels. This was important for political and philosophical reasons which will be discussed later, but in terms of Vygotsky's learning theory, the use of tools is an important key to

understanding how humans develop and mature. The main tools used are symbolic systems which allow humans to construct knowledge. Children learn language from their culture and society:

> Real concepts are impossible without words, and thinking in concepts does not exist beyond verbal thinking. This is why the central moment in concept formation, and its generative cause, is a specific use of words as functional tools." (Vygotsky, Hanfmann, & Vakar, 1934, p.107)

For Vygotsky this could be observed in children's "inner language." Children talking to themselves while playing was an early form of this process of development. Vygotsky (1978) compares his conception of this inner language to Piaget's concept of "egocentric" speech and adopts the same term but adapts it to his own system (p.24). As children mature, this inner language becomes increasingly symbolic and the intermediary of the tool (the stick that represented the horse) becomes unnecessary. Eventually even the symbols used to mentally represent objects became unnecessary, thus the adult moves beyond the symbolic to the realm of higher critical and theoretical thinking (Vygotsky, 1967).

Vygotsky (1978) explored related ideas in a concept which he termed the "Zone of Proximal Development" or "ZPD". Vygotsky's idea of the ZPD is the gap between what a learner knows and what with the help of others he or she can learn to understand. The lower bound of this Vygotsky termed the "actual developmental level." This included tasks and skills that the child had already mastered (p.86). The upper level of this range was what Vygotsky termed "the level of potential development." This was the highest

level of achievement or skill the child could master. He then explains that the Zone of Proximal Development "is the distance between the child's actual development level as determined by independent problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p.131).

For Vygotsky, it was the interaction of the child with both the tools of language and culture, as well as the interaction with others that would allow the child to make progress between what they could do on their own, to what they might achieve if encouraged and aided by others. In his view children were not simply at a fixed level or stage of development, but operated in a zone from what they already knew and mastered and what they might be able to achieve by working with others. This study will attempt to determine if some of the elements of Vygotsky's theories about the use of tools such as language and interaction with others shows evidence of helping or hindering the students' progress in learning language in a virtual world.

Vygotsky employed the term "scaffolding" to describe this process. He thought that children needed assistance to make progress in learning (within the range allowed by their zone of proximal development.) When an instructor or friends interacted with a student to help them learn a concept or task it could be likened to the use of scaffolding in the traditional sense: a framework put up while constructing a building. To further elaborate this practical example, once the building was finished, the scaffolding was no longer needed. Vygotsky employed this metaphor when describing what happens with children learning something new. As the child gains increasing competence, the support of the instructor no longer is needed. The trajectory is from constructing lower forms of knowledge and competence to higher and more critical processes (Vygotsky, 1978).

Vygotsky considered the use of tools such as language and cultural support to be elements of scaffolding which helped the child progress upward within his or her zone of development. He also saw that the activity of play was an important aspect of progress in the zone, saying, "From the point of view of development, creating an imaginary situation can be regarded as a means of developing abstract thought" (1978, p.103). For Vygotsky when children played games they often worked to the best of their ability and were challenged. It might be "fun" to use our current vernacular, but Vygotsky noted "play for a child under three is a serious game," (p.104) and further explained:

> At school age play does not die away, but permeates the attitudes toward reality. It has its own inner continuation in school instruction and work (compulsory activity based on rules). It is the essence of play that a new relation is created between the field of meaning and the visual field – that is, between situations in thought and real situations.
>
> Superficially, play bears little resemblance to the complex mediated form of thought and volition it leads to. Only a profound internal analysis makes it possible to determine its course of change and its role in development. (Vygotsky, 1978, p. 104)

This illustrates some of the elements of the difference between Vygotsky and Piaget on the topic of play and development. These differing views of play and "serious games" will have bearing on elements of learning in a virtual worlds and the relation of this activity to videogames which will be discussed later in this study.

Vygotsky, Piaget, and Theories of Learning

Two general theories of learning in contention since the beginning of the twentieth century are, broadly speaking, behaviorism and cognitivism (Hung, 2001). B.F. Skinner, the most prominent theorist of behaviorism in the second half of the 20th century, developed his theories of radical behaviorism in the late 1950s and early 1960s (Graham, 2010). Skinner (1974) looked on human nature as a "black box" and what he termed "inner processes" didn't interest him – only observable behavior. In the cognitivist system, the focus is on learning through the use of mental processes and there is an attempt to understand and accommodate learners, focusing on a holistic approach that promotes sense-making, retention, and motivation (Reigeluth, 1999). Cognitivism, which *is* concerned with the mental processes which accompany learning, became more widely accepted due to the influence of additional theorists who adopted this theory and moved it forward from the 1980s onward (Bruner, 1985).

Constructivism as applied to learning theory is a concept that deals with the ways a learner creates meaning through interaction with the world. Though both Piaget and Vygotsky are classed as "constructivists," the work of Piaget is generally termed "cognitive constructivism" while that of Vygotsky is considered "social constructivism" or "socio-cultural constructivism" (Duffy & Jonassen, 1992; J. Piaget, 1964; Schuh & Barab, 2008; Warren, Dondlinger, Stein, & Barab, 2009). The social constructivist viewpoint as described by Vygotsky refers to the role that the social context plays in learning, the belief that learning takes place when there is guidance and support from others that gives the learner an opportunity to construct knowledge through interaction

with others (Schuh & Barab, 2008; Vogel-Walcutt, Gebrim, Bowers, Carper, & Nicholson, 2011).

In contrast to the Vygotskian approach, others place Piaget in the camp of more modern cognitive constructivist theorists though his work is sometimes viewed as being simply a theory of cognitive development (Pass, 2004). Some consider both Piaget and Vygotsky constructivists because they stress "constructing" knowledge as an individual or in society. There are those who disagree with this point of view and who see much of the earlier history of instructional design as "objectivist" in outlook (Cronjé, 2006; Warren et al., 2009). They include the work of behaviorists such as Skinner and of cognitivists such as Piaget in the camp of objectivists because they posit a real, external world outside the knower which he/she objectively experiences (Cooper, 1993; Jonassen, 1991). "Radical Constructivists" are those who do not agree that there is an "objective reality" as an external referent to the observer, though this is an extreme view even in post-modernist circles (Cahoone, 1988).

The author of this study would situate both Piaget and Vygotsky as primarily constructivist (as opposed to objectivist) in outlook. This opinion is based on the emphasis in both theorists that learners interact with the world and society, whether directly or through mediated activity by the use of tools. It was not clear in the literature of either theorist that they questioned the existence of the world of objects, rather, their focus was on the learner, and how that person formed his or her conception of the world and developed higher cognitive processes needed to understand the world and communicate with others. This seems to place them both Vygotsky and Piaget firmly in the constructivist camp.

A Neo-Piagetian Approach

Siegler (1976) built upon Piaget's work and presented a more nuanced view of the stages of cognitive development. He replicated many of Piaget's experiments with children using more modern methods and assessments. This produced insight into the consistency of the stages related to age and other factors. In later work he proposed new approaches to understanding the processes through which children learn how to overcome problems in learning (Crowley, Shrager, & Siegler, 1997). He notes that a child may achieve the level of concrete mastery of a certain task and then over time regress in their level of understanding. He also sees other strategies which children employ to try to learn tasks and make progress on solving problems which are not only at the level of formal operations but use experimentation and lower level reasoning as a tool. Siegler (1976), along with fellow researchers, does not see discrete stages in learning as Piaget did, but instead focused on the use of a variety of strategies to solve problems. Some strategies might be appropriate for some tasks and inappropriate for others. He proposed that in a way these strategies compete for the role of method of choice to solve any particular problem or task which the learner encounters as they grow in knowledge and mature (Crowley et al., 1997).

As noted in the previous section, Piaget's early work would not be considered up to current standards of scientific rigor for reasons which relate to methodology and sample selection. (For example, many of his observations were of his own children.) This study will attempt to reference some of the newer iterations of Piaget's theories which do have

more empirical validity when examining the conclusions which can be drawn from the results of the learning activity.

New Interpretations of Vygotsky: Activity Theory

As there are new developments and new interpretations of Piaget's theories, there are also new interpretations and developments which build on the work of Vygotsky. One such new formulation of Vygotsky's theories of the learner's interaction with others which relates to virtual world pedagogy is "activity theory." This is a term used for a complex variety of theories which are referenced in behavioral psychology, education, and technical and professional communication. Activity theory is built upon the work of Vygotsky and other Russian theorists in the fields of psychology and language studies such as Leont'ev, Luria, and Bakhtin (Stewart et al., 2012; Warschauer, 1997). Kozulin (1986, p.1) notes that "the concept of activity is deeply ingrained in Soviet psychological theory" and that it has been an integral component of that system since the 1920's.

In this elaboration of Vygotsky's theory there is an interplay between the learner, the tool or artifact, and the social milieu. Scandinavian theorists, notably Engestrom (1999), have further elaborated on elements of this interaction between learner and environment and focus on learning being an activity characterized by an individual, an object or artifact, and a community (Engeström, Miettinen, & Punamäki-Gitai, 1999).

The three elements which Scandinavian Activity theory stresses are the subject, the object and the community. Activity theory examines how the subject learns both through internal (centered on one's self, including mental activities such as imagining an outcome) or external activities (influenced by the community and in interaction with others.) The

concept of mediation in activity theory is a recognition of the role that tools and artifacts play in the learning process (Engeström, 1999). These objects have an historical development or evolution and are an integral part of learning. This would include how humans interact with computers to learn (Nardi, 1996). Both the individual and the community are seen as important aspects of the learning process which is situated in both an historical context and in a social and cultural milieu (Basharina, 2007).

Activity theory is an elaboration of Vygotsky's principles of learning and development which can be applied to learning of language in virtual worlds because the individual by the use of the tool (the computer interface) also interacts with a community of other learners and an instructor. Jonassen & Rohrer-Murphy (1999) describe the utility of activity theory in this way:

> Activity cannot be understood or analyzed outside the context in which it occurs. So when analyzing human activity, we must examine not only the kinds of activities that people engage in but also who is engaging in that activity, what their goals and intentions are, what objects or products result from the activity, the rules and norms that circumscribe that activity, and the larger community in which the activity occurs. (p.62)

The researcher believes some that the elements of activity theory noted above can be applied to of learning German in a virtual world setting, and these elements (such as what the context of the activity is, who is participating, and what the results are) can provide insights valuable to the conclusion portion of this study.

Activity theory is described as one alternative among many approaches which challenge the basic concepts of learning which focus only on the individual as was the case in behaviorism. Instead, learning is considered to be something which is "situated" in a community and within an historical and social context. This social element which was important in the work of Vygotsky, is stressed not only in activity theory, but in related theories on situated learning by Bakhtin, (and Foucault) as was discussed in Gee (1999).

In activity theory the role of the individual learner is examined in depth, as is the role of tools and artifacts which are part of the learning process, and the role of history, culture, society, and the activity of the instructor: all these elements of the learning process are considered important and worthy of study.

Discussion of Virtual World's Technology

In the current literature there are a number of topics discussed which relate to virtual world's education and to the relationship between educational sims and videogames. Videogame violence is one topic discussed in both the scholarly as well as popular media, and there are elements of this study which relate to that topic. Other topics include the nature of the virtual world's environment, broader issues of the relationship between video-games and virtual worlds, and gender issues related to these topics. There is also considerable discussion in the literature on the topic of role-playing, both in the realm of virtual world's technology, and in videogames in general. All of these topics are impacted by wider discussions about online education, and how this relates to intercultural communication and the way people relate to each other in computer-mediated social settings.

Videogames

Early in the development of virtual worlds' technology, Schie and Wiegman (1997) cautioned that although there were positive effects from playing videogames, such as an improvement in a child's ability to concentrate and in the development of some intellectual skills, there could also be problems associated with frequent videogame play. They did not find that aggressive behavior was a clear problem, (it was not a statistically significant, measureable effect), but they did find a negative correlation between the amount of time spent playing videogames and what they termed "pro-social behavior", i.e., keeping to oneself and not voluntarily helping others (Schie & Wiegman, 1997).

In contrast, Gee (2003) was quite positive in his analysis of the effects of videogames on frequent players, which he discussed in his book *What Videogames Have to Teach Us About Learning and Literacy*. He felt that videogame-like virtual world environments can be useful for education, citing a study on the topic of children, television, video games by Greenfield (1994) and one by Loftus and Loftus (1983). He asserted that even violent videogames can teach positive lessons about personal identity, learning about complex situations, learning to follow commands and instructions, and choosing role models. Gee states "None of the current research even remotely suggests video games lead to real-life violence in any predictable way" (2003, p. 11). He notes that conservative politicians are pleased to see that rates of crime in violent crime in America have fallen since the introduction of violent videogames. He also cites Anderson and Bushman's (2001) meta-analysis of the effects of videogame violence. The researcher finds this somewhat puzzling, because in the results section of this meta-analysis (the work Gee cites) the authors say: "Across the 33 independent tests of the relation between

video-game violence and aggression, involving 3,033 participants, the average effect size was positive and significant, (r.19.2). High video-game violence was definitely associated with heightened aggression." (Anderson & Bushman, 2001, p.5) Gee also cites a study by Anderson and Dill (2000) linking aggressive thoughts, physical violence, and delinquency to increased levels of videogame play among youth. The method used in the study was a pair of correlational studies using survey methods to gain data on two hundred twenty seven male and female undergraduates at a university. The students were tested for measures of aggression following game play in a laboratory setting and also correlations were done for students involved in violent game play in their leisure time. The authors of the study conclude "we believe that the present results confirm that parents, educators, and society in general should be concerned about the prevalence of violent video games in modern society, especially given recent advances in the realism of video game violence." (Anderson & Dill, 2000, p.18). The results of these two studies by Anderson, Bushman, and Dill do not seem to reinforce Gee's assertion that there is no link between violent videogames and aggression in the literature. On the contrary, the very studies he cites in his book (in a special separate bibliography at the end of each chapter) seem to directly contradict his positive assertions about video games and violence.

Two other researchers have sought to determine if students can acquire knowledge in these emerging computer mediated environments. Hung (2001) surveyed the range of learning theories based on the four major models of learning: behaviorism, cognitivism, constructivism, and social constructivism and applied them to the realm of new technology based on computer simulation. Attending a classroom or learning simulation as an avatar is one particular form of online learning with a variety of issues related to the

type technology which is used, how the activity is scheduled, and what the learning environment is like for the students and teacher. Warburton (2009) examined how some of these elements are part of any form of online education, but some are unique to virtual worlds as a learning environment, presenting unique challenges and opportunities. Both of these studies are descriptive in nature and did not employ in depth quantitative or qualitative methods to reach their conclusions.

Experiencing Virtual Worlds

For someone who has never visited a simulated 3D environment, it can be a somewhat disorienting experience to do so for the first time. In order to be able to participate in a virtual world, the user must create or modify a personal avatar. In most applications, the clothing and appearance of an avatar can be changed to reflect the creator's personal preferences. Karopouszis Caridakis, Fotinea, & Efthimiou (2007) discuss how a student, in the form of an avatar, can now interact with others differently than he or she could in a regular classroom. This includes expressing oneself through movement and physical activity. Once the user has assumed the form of an avatar, some theorists believe that other issues arise related to how users experience a variety of thoughts and feelings about them (de Jong Derrington & Homewood, 2008).

Schroeder (2002) edited a collection of articles entitled *The Social Life of Avatars* which investigated how "we make sense of the interaction between people who encounter each other only in the form of graphical representations" (that is, only as avatars) (Schroeder, 2002, p.4). This study examined how people communicate with others as an avatar. This includes aspects of interpersonal, small group, and large group

communication, which are common elements of social science research, but Schroeder and the contributing authors also examine avatar interaction in terms of "presence" and "co-presence" which includes the concept of "being there" and "being there together" (Schroeder, op. cit.). It can be seen from these brief descriptions of just a few studies that research into avatars and communication is a broad and developing focus of research.

The interaction of users as avatars takes place in a "synthetic immersive environment" which exists only on computer servers and that can linked to both the world of commercially produced video-games – such as *World of Warcraft*, or *Team Fortress* and to earlier attempts at computer based learning systems (Lin, Shih, & Yang, 2005) . Videogames and virtual worlds share some similarities, and as Laviola notes (2008) the technology continues to move from the gaming industry into the mainstream. This process can be seen in the widespread adoption of gaming interfaces such as the Nintendo Wii which is now used by senior citizens for physical activities like "Wii Bowling" in a 3D virtual world at retirement homes.

Videogames and Virtual World Language Learning

The learning of a foreign language has sometimes been considered a dry and somewhat boring process. It might be enhanced by the incorporating some of the more engaging features of videogame play. The relationship between the teaching format of virtual worlds to the world of computer and video games is reflected in some of the concepts which instructors involved in teaching language adopt from the realm of entertainment oriented products. Kramsch & Kramssch (2000) discuss the idea of employing both role play and mime and the use of some the elements of drama in virtual

world instruction. Shih and Yang (2008) discuss the use of storytelling in constructing engaging scenarios in which language instruction can take place.

Quests as Learning Activities

Several researchers propose that other elements traditionally associated with "gaming" can be integrated into virtual worlds learning simulations. One such element is to have students attempt to accomplish goals in order to gain rewards (Schneider & Panichi, 2009). Another idea is to have them participate in difficult or challenging activities of various kinds (Sykes, Oskoz et al. 2008). Cooke-Plagwitz (2008) notes that game-like activities such as "quests" can be used to send students on virtual treasure hunts for information or prizes hidden somewhere in the virtual world, and that for students in language learning simulations this can be an engaging way to practice language skills. She notes that the reward of a prize or trophy can be a useful motivation that keeps students focused on the task.

Related to this, Greenfield, DeWinstanley, and Kilpatrick (1994) apply McLuhan's dictum of "the medium is the message" to the way in which strategies of cognitive learning (as discussed by the Neo-Piagetians) are impacted by participating in video games online. Squire (2006) sees videogames also through the lens of McLuhan's ideas about the way in which the medium shapes the message and agrees that the "challenges, goals, and practices" of the game activity can enhance learning in a way that is different from traditional games built simply on educational content (Squire, 2006, p.25)

Vickers (2010) promotes the use of quests which have previously been one form of videogame play used in the commercial media. He notes that game quests have the ability

to engage learners and he (as well as others) note that this can extend to collaborative activity with others (Cooke-Plagwitz, 2008; Vickers, 2010). This sort of shared group activity might extend to what the linguist Steven Thorne spoke of as "intercultural communication in the wild." (Thorne 2010). He observed participants in videogames who became engrossed in game activity with players from other countries and/or language groups. Typically this meant being part of a team (sometimes called a "clan" or a "guild") and interacting through typing chat and sharing language elements. Players learn new words and phrases in the foreign language without any formal instruction from their peers as a result of this interaction.

The Landscape of Virtual Worlds

The word "persistence" is used to describe virtual world environments. The concept of "persistence" has an unusual connotation when used as a descriptive term for both videogame and virtual worlds. In this context, "persistence" means that the virtual world remains constant over time, even when avatars are not present or if they leave (Barab, Gresalfi, & Ingram-Goble, 2010). An example in a videogame would be that one member of a team of combatants might leave and turn off his computer, but the game would continue on without him. Even if his entire team were to leave the simulation, the "world" would continue to operate with other teams playing. In an educational sim, this could mean that different students could enter and leave the world at different times, and perform tasks and the evidence of that activity would remain in place for other student avatars to see when they visit that location. This allows for asynchronous collaborative activity in learning, or even in the construction of elements of the simulation to be used jointly by students who will either individually or jointly visit that virtual location at a

later date. For example, one student could build a bridge over a stream on a virtual island, and the rest of the class could later cross that bridge to a new location. The landscape of a place in a virtual world can be changing constantly, with new signs, buildings, landforms, and artifacts being created, imported, or modified by t\he users who have access to the virtual environment. Garris, Ahlers, and Driskell (2002) note that learners can learn from "active engagement with the environment" and they believe that this experience if it is reinforced by instruction, "can provide an effective learning environment" (Garris et al., 2002, p.7)

Casual vs, Hard-core Gaming and Gender

Kultima (2009) discusses two possible classifications for videogames include "hard-core" games and "casual" games. The expression "hard-core" does not refer to the amount of sexual content in the games, but to the difficulty of the games and the requirements they make on the player in terms of time, commitment, and expertise. Griffiths and Lewis (2011) describe hard-core games as those played by avid gamers or "hard-core" gamers who devote a great deal of time and energy to mastering differing levels and aspects of game play. The hard-core games are in some instances (not all) favored by male players, but this finding varies depending on culture, location, and exposure to the games. The authors of the study conducted online focus groups using female participants:

> "…recruited via postings made to several casual gaming website discussion forums (*BigFishGames.com, iWin.com, Pogo.com*, *Gamezebo.com* and emailed to members of *PopCap.com* and the casual games mailing list of the *International*

Game Developers Association). These sites were chosen as the best site for recruiting participants because they are the most popular among casual-gamers and are trusted destinations for casual game content (Juul 2009). The study was self-selecting in that participant recruitment post specifically asked for women who played daily or near daily, and who considered themselves to be "skillful, high-scorers, or competitive" in their game play." (Griffiths & Lewis, 2011, p.6)

This description of the selection process is provided because there could be a possible problem with this method of participant recruitment. The problem is that there is no way to verify that the "female" participants were indeed female, because the entire process was "self-reporting" and the later qualitative focus group study was conducted entirely online. It is known in internet gaming circles (and other internet contexts) that the word GIRL can be an acronym which means "Guy In Real Life" (Poprocsi, 2010). It could be that the sample population of 18 "female gamers" was not a valid sample, since the researchers never met the participants in real life. This makes Griffiths and Lewis assertion that the playing of hard-core games is not statistically significant based on gender slightly suspect.

Kultima (2009) observes that playing of "casual games" is skewed more towards female players. Casual games have less complex rules, are openly accessible to beginning players, and can belong to a variety of game genres. The video game "The Sims" is similar in many ways to "Second Life" and to "OpenSim" and is often discussed as a casual videogame that appeals to both genders and has wide circulation. Kultima personally samples the casual games that are readily available and lays out recommendations for making casual games more widely accepted "I presented four casual

game design values: acceptability, accessibility, simplicity and flexibility." (2009, p.8) While informative, this study is primarily the opinion of the author, based on her personal experience in having "played and browsed through a vast number of different casual games between the years 2006 and 2009." (Kultima, 2009, p 4). Her conclusions are that virtual worlds have many of the features of casual games including persistence, ability to come and go without penalty, and less intense interaction (less sex and violence) than war games or fantasy adventures. Casual games are often played as a diversion for people at work for a short period of time, or on mobile devices while passing time during another activity such as waiting for a bus or for an appointment in a waiting room.

Integrating Language Instruction into Gaming

Elements of videogames can be incorporated into language learning in 3D simulated environments. Vickers (2010) discusses how students are able to choose from several learning options and craft their own approach to acquiring knowledge which stresses autonomy, personal relevance, and motivation. Peterson observed (2012) the way in which students in a virtual world experiment together and are able to work on negotiating meanings for words and concepts. A number of scholars, including Peterson, Felix and Vickers, felt that the virtual world environment enables students to feel less fear and anxiety while attempting to learn new concepts in a new language and that it is not as worrisome as being forced to speak a foreign language out loud in a traditional classroom setting (Felix 2004; Peterson 2006; Vickers 2010).

Zheng (2009) discussed the level of involvement that a person feels as an avatar in a virtual world. He spoke of the sensory experience which users develop in relation to

their avatars. He and his co-researchers used the term "embodied cognition" to characterize the sense which users gain of their avatar being almost a continuation of themselves, as if they were feeling (in the sense of touching) what their avatar was feeling or touching in the 3D world. (Zheng, Young, Wagner, et al, 2009, p.491.)

Comparison to Online Learning

Language learning activities in a virtual world share some commonalities with the growing field of other forms of online learning in the K-12 setting. Participating in a virtual world learning activity is a form of online learning (using a broad definition of the term) since it is done by students who are participating in a learning environment which is generated in computer connected to the internet which "contains" the learning program (Anohina, 2005).

Barab and Dede, as well as Aldrich, note that virtual world learning shares some common elements with online learning not only due to the fact that it takes place in a "distributed" virtual world (Aldrich, 2009; Barab & Dede, 2007). The term "distributed" in this context means that the students are not either face to face with other students or with their teacher, but instead are interacting in the virtual world for the lesson. This is also an aspect of distance education in general. The students are not face to face with peers or instructors, but learning course material while on a computer, regardless of their physical (geographic) location.

Online learning

Additional aspects of online learning relate to whether the learning is synchronous or asynchronous. Asynchronous online courses do not have the students present with the

teacher in “real time” i.e. “live.” Carnahan (2012) reported that numerous studies show asynchronous learning is the most prevalent form of online education. Barbour notes a variety of styles of learning which take place with students completing assignments and submitting them online, then joining classmates for a chat about the content, or talking with the teacher via email or telephone (M. Barbour, 2011). The majority of the work in these courses is completed asynchronously by the student working alone or under the supervision of the parent. In these sorts of online courses the parent often plays a leading role in assisting the student in the learning process. Carr-Chellman and Marsh (2009) concluded that the role of the parent is often touted as a positive element of online schooling for those promoting homeschooling, cyber-schooling and cyber-charter schooling. In contrast to the prevalent homeschool or cyber school model of online education, this proposed research study concentrates on the use of the online learning environment as an adjunct to, or as an integral part of, the traditional educational system instead of as a complete replacement of the more personal relationship between trained instructors and children in a local public school.

There are some other ways in which virtual world education differs from common forms of online education. In studies of K-12 virtual worlds online education reported in the literature, most of the actual online activity is done in classroom computer labs with students all “in world” at the same time (Parrott, Olear, Carnahan, Lenze, & Sherman, 2012; Warren et al., 2009; Warren, Stein, Dondlinger, & Barab, 2009). Students participate in the virtual world by logging in to the computers in the lab during a class period and then interacting in the virtual world as avatars. This differs from more common forms of online learning in two ways: the students are all in the same room,

(typically a computer lab or a "language lab") whereas in most home-schooling or cyber-schooling programs they are logging in from home or other remote locations. This is an important point, and not discussed in the literature. If children (students) are all in the same room, they are likely to interact in ways that are different from the ways in which they would react to each other if they are at separate locations. They can talk out loud in a voice that everyone in the class can hear. They can form cliques of friends within the lab and interact as small groups. They can give each other tips and advice on how to negotiate different elements of the virtual world lesson. They can exhibit negative behaviors, such as bullying or intimidation of other students. All of these activities were observed by the researcher during the Kiski School research project and some of them were discussed in the findings of that study (Parrott, et al, 2012.)

Incidental Learning

The interaction of students in a computer lab could provide "confounding variables" to an experiment in virtual worlds because of the communication of students outside the virtual world. As noted above, this problem with virtual worlds' research in computer labs has not been discussed in the literature to any great extent, if at all. Konetes (2011) conducted a study of incidental learning at a university campus in which some of the students took some of their courses online and some took them in-person. That study was impacted by the same sort of confounding variables. The students were being tested for a number of factors related to incidental learning. This included aspects of social life among the students and interaction with their professors. But because the students in the study who were "online" students, and the "traditional" students in the study were all interacting in other classes and socially in dormitories and other college activities, there

were other opportunities for incidental learning even for the "online" students. This would appear to be a "confounding variable" of the type discussed by Campbell and Stanley in their work on experimental vs. quasi-experimental research design (Campbell & Stanley, 1963).

The second way virtual world learning differs from most online programs is the fact that the students typically participate in all the activities synchronously. In general, online learning is done when the student has time and opportunity to complete the learning tasks, and the student often learns at their own pace. In virtual world learning, the students tend to participate in more group activities done at the same time by all the students. Barab and Dede (2007) discuss how these can be learning quests or role-playing games which the students participate in together, and the they note that activities in educational sims often differ from some of the more typical text based curricula of online educational programs.

The presence of the teacher as an avatar in the virtual classroom, as either a participant in the learning activity, or as an observer of the learning activity, is another way in which virtual world language learning in a K-12 setting differs from typical forms of online learning. The teacher can be an active participant in a game or role-playing activity or can be observing the students by watching their computer screens in a computer lab, or by visiting the virtual world with the students and observing them "in person" (Henri & Pudelko, 2003). It is also possible for the teacher to instruct the class in a replica classroom using standard teaching methods while in the virtual world. There are virtual worlds classroom simulations which consist either primarily or solely of a classroom, with chairs or desks for the students and a podium and with a projecting screen for the teacher.

The teacher can project Power-point slide presentations or other similar media on the screen "in-world," and the students can follow along and ask questions out loud or via chat in a manner that is quite similar to a normal classroom experience. This is the form of virtual world simulation used by Carnahan (2012) in a dissertation on the topic of teaching science in a virtual world. Carnahan conducted a Pre-test/Post-test study with some students doing a science lesson in a virtual world classroom setting, and some students doing the same kind of lesson in a regular classroom. The virtual world used for this his study was "hostavirtualevent.com" which consists of a small number of classroom and common areas which students can visit with their teacher to have class instruction very similar to what they normally experience in a real world classroom,.

Another study which is in contrast to Carnahan's dissertation study raises an additional question concerning virtual world education. Should it take place in a "simulated classroom" or in what has been termed "fantastical worlds" (Parrott, Lenze, Olear, Carnahan, 2012). Fantastical worlds are "purpose built" simulations just for learning language (or other subjects). The expression "fantastical worlds" refers to virtual world simulations with such things as the Leaning Tower of Pisa or a full size Slave Ship or a Mead Hall. These examples were part of the simulated environment for the Kiski Boys School study cited. It is fairly simple and less costly to build a virtual world with a classroom setting than to build an extravagant simulation with structures like medieval castles or ships that sail on water, or other "fantastical" elements. Fantastical elements which move in a virtual world (i.e., which are animated) typically require both 3D modeling and scripting (a form of computer programming) by digital graphic artists and computer programming specialists. This sort of software development can be costly and

time consuming work. There is also a cost in terms of the amount of computer hardware which is needed to run the more extravagant simulations. This is true of not only the computer which logs-in, but the amount of server space and processing power of those hosting the virtual world network. This proved to be a serious problem with a virtual world platform named OLIVE (On-Line Interactive Virtual Environment) which was used as the basis of the Kiski Boys School virtual world experiment and this problem has been examined by other researchers working in virtual worlds (Messinger et al., 2009). The OLIVE platform would freeze up or crash due to lack of processing capability when more than just a few avatars were present, most likely due to the highly detailed structures present in the teaching simulation, or due to a lack of capacity in the cloud based processing system.

Role-Playing and Language Learning

One element of traditional language instruction in the classroom is the use of co-operative learning and interactive activities by students in small groups to complete tasks. In these learning tasks, each person in the group has a responsibility and the language students must work together to solve a problem, puzzle, or complete a task (Shrum & Glisan, 2009). This sort of task-based instruction is able to play a vital role in acquisition of language learning elements as students use the target language as a tool to accomplish a goal (Crookes & Gass, 1993). Students can work together to solve a puzzle, play a game, or plan a route to a location on a map. In accord with the scaffolding of learning as proposed by Vygotsky, the teacher assists the students with strategies appropriate to accomplish the task (Shrum & Glisan, 2009).

Task-Based Language Teaching

Task-based language teaching (TBLT) continues to find increasing favor as a method of providing language learners with opportunities to improve their ability to speak a foreign language more fluently (Aliakbari & Jamalvandi, 2010). One activity favored by those developing syllabi for the use of TBLT is the use of role play scenarios to enhance learning. This is an increasing trend in language education since the 1980's. This new emphasis seeks to provide language learners with "real-life" or "authentic" opportunities for trying out their new language, as opposed to more formulaic approaches favored in the past. This is based on a recognition that language learning should not be dependent on merely learning language structure and forms, but on acquisition of more pragmatic elements a socio-cultural setting (Tateyama, 2007). A respected authority on the teaching of English as a second language notes that the practice of role-playing for language learning can be both fun and motivating (Harmer, 2001). It provides students who might otherwise take a less active role to find a different mode of self-expression in the target language and it broadens the perspective of students to appreciate elements of the cultural world of the language they are attempting to learn.

Role-Playing in Virtual Worlds

Dickey (2007) notes the use of role-playing in 3D virtual worlds as an aid to language learning. But there can be a problem in studying only the use of ready-made videogames which have the participants arrive as avatars and complete a task within the context of a video game environment – such as Halo, World of Warcraft, Team Fortress, etc. These games are typically known as MMORPG's: "Massively Multiple Online Role-

playing Games" (Dickey, 2007). These are not language learning activities, per se, but when players from different languages collaborate on teams they often learn language elements from each other (Thorne, 2010). There are some problems with using this as a pedagogical method for bringing people together to learn language, one of which is the fact that hard-core video-gaming (for the most part) is an activity favored by male participants in terms of cultural values (Dickey, 2007). This brings up issues related to hard-core gaming including violent content, inappropriate language, and sexual content and stereotypes of many of these MMORPG's.

Some educators use "purpose built" simulations which they design specifically for language learning instead of relying on existing video games such as MMORPG's to provide the interaction needed for language learning. Several educators have used this type of simulation in Second Life or OpenSim. A study done in China applied constuctivist principles to learning language through a task based program of study in a virtual world (Wang & Shao, 2012). The researchers applied the ADDIE model of instructional design to an English language learning activity for Chinese students, and they evaluated the utility of using Second Life for this type of activity. They noted some practical issues related to adapting the Second Life virtual world environment to a learning activity for language students, since it was not specifically designed for that purpose.

A more direct approach was taken in Europe by Nick Zwart who built the English virtual language village "Chatterdale" and the French language village "Parolay" (Zwart, 2012). These simulations replicate the role-playing activities which take place in K-12 education in Holland which Zwart discussed at SLangauges 2012 conference in Second Life on the topic of languages (Zwart, 2012.) Zwart, in his presentation, said that in Dutch

schools it is common to have a part of the actual "bricks and mortar" school devoted to language role-playing "sets." These are physical constructions meant to simulate a customs office, a bread shop, an airport, etc. Students in Holland complete role-playing activities "in real life" by pretending to be tourists, while the instructor pretends to be the customs officer, shopkeeper, or airport employee.

This environment has been reproduced in Second Life by those involved in the NIFLAR project (Networked Interaction in Foreign Language Learning and Research) for some years (Jauregi, de Graaff, & Canto, 2011). Following this initiative, the European Union created language learning simulations of various kinds, including those specifically dedicated to role-playing on the Dutch model. Only recently, due to problems related to security and cost with Second Life, have these applications moved to OpenSim and become functional in that environment (Zwart, 2012).

Intercultural Communication and Virtual Worlds

The study of language learning in a virtual world might also be considered as an aspect of intercultural communication. It is a common occurrence when participating in activities in virtual worlds to find that the people who have joined together are from a variety of different countries and cultures. Marshall McLuhan theorized that electronic media were moving societies towards what he termed a "global village" (McLuhan, 1964). This is an accurate reflection of the current reality in virtual worlds. For example, a 2012 conference on languages in Second Life included participants from Western and Eastern Europe, East Asia, and North and South America. In order to facilitate the meeting, all the participants had to consult a clock based on Greenwich Mean Time and log in at that time

to meet colleagues and attend sessions (Philp, 2012). This illustrates McLuhan's view (2003) that the electronic media will eventually break down the barriers of time and distance and create new communities of discourse based on the interconnected nature of the electronic medium.

This reflects one of the key advantages of virtual world technology: that it can bring people together in a simulated bodily form to interact across distance, time, and culture. This interaction between differing cultures as related to language is discussed by theorists who study both language, thought, and culture. An early example of the linkage between these elements was seen in the German romanticist Wilhelm Von Humboldt, who argued that there were diverse "nations" of language speakers (Gumperz, 2001). The interplay between speakers of different languages and how they interact is the subject of discussion in a wide variety of fields, including philosophy, sociology, anthropology and studies of literature, culture, and linguistics (House, 2007). It relates to issues of language learning and how different people perceive reality, which has fostered a vigorous debate on the topic of linguistic relativism as discussed by the anthropologist and early practitioner of ethnography, Frank Boas. One of Boas students, Edward Sapir, formulated the theory that because there were fundamental structural differences between languages, the speakers from different cultures would not perceive reality in the same way. There was a separation of language into typological classifications such as "isolating," "agglutinive" and "inflecting" languages and Sapir theorized that these related to stages of cultural development (Ikegami, 1985). This was further correlated into cultural categories such as "agricultural," "nomadic" and "industrial." Consistent with cultural viewpoints of the day based on social Darwinist theory, these categories were seen to be an inhibition to

progress and advancement of people from more "backward" cultures because they were unable to form higher order levels of thinking because of the paucity of linguistic representations of thought available to them.

This viewpoint of Sapir's is also associated with the work of Benjamin Lee Whorf. Whorf saw correlations between language forms and "fashions of speaking," a throwback to Von Humboldt's *"Sprache ist Geist,",* "language is spirit" (Ginzburg, 1999). These language forms and typologies limit (in the Whorfian view) the ability of the speakers of a language to form concepts and content. This is also reflected in Wittgenstein's *Tractatus Logico-Philosophicus* when he writes "The limits of my language are the limits of my world" (Wittgenstein, 1971, p.64).

The combination of Sapir and Whorf's views of language and culture are often spoken of as "The Sapir-Whorf Hyphothesis" (Ikegami, 1985). This view that language limits or sets boundaries on the ability of speakers of differing languages to find common ground and share concepts from what culture of people to another is thus termed "linguistic determinism." An Italian proverb shows how deep the divide is between those of differing languages when it declares *"traduttore traditore,"* "to translate is to lie" (Hyde, 1993). But this highly negative and exclusionist view that language separates people into distinct camps unable to clearly communicate alike (or even, think alike) came under fire from modern language theorists who question many of the hypotheses of the Sapir-Whorf theorists. There is now a dichotomy in discussions of the theory with a "strong" version of the Sapir-Whorf hypothesis "linguistic determinism" and a "weak" version "linguistic relativism." The "weak" version posits that there are cognitive effects

related to the structure of language, but that they are not totally determined by the language structure and that other factors also come into play (Pinxten, 1976)

This theoretical discussion is further developed in relation to the use of virtual world technology as a means of fostering intercultural communication. Some of the research previously mentioned in relation to role-playing and Second Life is also the subject of studies by those involved in the NIFLAR research projects (Canto & Jauregi, 2013). This is part of a broader overall attempt to use both Second Life and OpenSim as environments which foster a sense of collaboration and intercultural communication (Konstantinidis, Tsiatsos, Demetriadis, & Pomportsis, 2010; Judith Molka-Danielsen & Deutschmann, 2009). By bringing together students synchronously for collaborative tasks in virtual worlds, Revenga (2011) believed that through 3D interaction with both other students and with a realistic environment which has elements of a specific country, a sense of that culture and way of life can be learned..

Summary of Relevant Studies

- The use of avatars for "immersing learners in a distributed synthetic, constructivist virtual world" (Dede, 1996, p.1). This study, done at the onset of the broadband internet boom, laid the groundwork for much of the scholarship in the field.
- Games, particular video games, are "learning machines" for those who participate in them (Gee, 2003). Only the best of the video games will survive in the highly competitive capitalist marketplace. Educators can learn many things from successful game designs which can be applied to teaching through the medium of 3D games.

- Quest Atlantis, a virtual world game designed specifically for education, stressed many of the elements of gaming that Gee mentions in his analysis of games and learning. Under the heading of "Making Learning Fun," Sasha Barab and a team of researchers at Indiana University designed a game on constructivist principles which stressed learning in a social context and with social responsibility: "a game without guns" (Barab et al., 2005).
- Virtual worlds bring together online gaming, sims, and social networking. Sims are a "Pandora's box" for educators with a host of new possibilities, but also a host of new obstacles and challenges (Kluge & Riley, 2008). How do you control the learning environment? How does an instructor award grades? What is the effect of the physical environment of a virtual world on learners?
- Virtual world education appears to have great possibilities, but little empirical research. A review of this research noted that of 470 of papers written on the topic of virtual worlds up to that time, there were only 15 that were not "opinion papers, conceptual papers, non-empirical descriptions of programme implementations, literature reviews, or non-K-12 and higher education related." (Hew & Cheung, 2010, p. 3). Of those 15 studies, only two included serious empirical research. There is a complete lack of longitudinal studies in the field, and a large number of areas for future study that have not been examined.

Summary of Literature

There is a growing body of research and writing in the field of virtual worlds' language education which stresses several recurring themes. These include: the nature of virtual worlds themselves (including what it is like to be an avatar and visit these synthetic

environments); the relationship between virtual worlds education and video games; the affordances for learning language from others in a real-time setting; the social, cultural, and intercultural aspects of participating in virtual worlds; and the theoretical frameworks which make it possible to examine virtual worlds as a form of learning and development. But as noted by Hew and Cheung (2010) there have been very few empirical studies done, and no longitudinal studies done. The literature points to the promise of virtual worlds for education, but provides limited evidence to back up the claim that it will be a vibrant source of constructivist learning in the future. This study is a modest attempt to rectify this lack of research and provide a foundation for further study in the field.

CHAPTER THREE

RESEARCH METHOD

Introduction

This chapter introduces the research design, sampling, and elements of the mixed-methods study. It includes a brief overview of the steps included in the study and a description of the study rationale and procedures employed, with both theoretical and practical aspects.

Rationale for Selection of Methodological Approach

This research study examines role-playing activity in a virtual world setting through the lens of a mixed-methods approach. It utilizes qualitative interviews and a survey of student subjects. A mixed-methods approach starting with a qualitative interview process is employed in this study in order to explore the overall attitudes, beliefs, and experience of the students at they interact with this new technology. This approach is deemed appropriate for this study because it gathers information from students about both what they feel and think about role-playing activities in the virtual world as a method of language instruction. It uses interviews to get in-depth explanations of the students to the sim as a mode of learning German, and it uses a quantitative survey to obtain information from the students anonymously. The data from both of these sources is then compared in order to look for areas where there is agreement between the interviews and the survey, and to see if there are any differences between the two sources. This methodology gives a full picture of how the students are impacted by the process of learning German in a virtual world setting.

The goal of the student interview portion of the study is to gain qualitative insight into the experience of the students for the lesson just completed, and the goal of the quantitative survey will be to learn more about students' beliefs and attitudes about the activity. The questions in the qualitative interviews are open ended and seek to gain understanding of what the experience was like for the students without promoting any specific agenda of the researcher. The survey design seeks to gauge student responses to the activity and seeks to understand their interests and experiences in education. The survey seeks to quantify demographic categories such as gender, and age, as well as the level of student experience with videogames. The survey also attempts to relate aspects of the guiding theory of constructivism to the learning activity in the virtual world.

Insights from both of these modes of inquiry resulted in a conclusion which provides a greater understanding of the experience, attitudes and beliefs of the student subjects. The researcher looked for common threads in the data collected from both sources of information, and attempted to provide further light on a new subject and form of pedagogy.

Unit of Analysis

A total of 52 students participated in the virtual world activity. The participants for this study were high school students of German at Clearfield High School, Clearfield, Pennsylvania who were allowed by their parents to take part in the study and who signed a consent form stating that they wish to be participants. The parents signed a form titled "Informed Consent," and the students signed a form titled "Informed Assent." Three

classes of German students (German II – 26 students, German III – 13 students, German IV- 13 students) completed the permission forms and participated in the study.

Procedure

Prior to the activity with the students, the Clearfield high school IT staff installed the virtual world software package. The browser is similar in some ways to an internet browser like Internet Explorer or Mozilla Firefox. In order to prevent technical problems during the role playing class sessions, the computers were tested to make certain they could run the software, and that there were not issues or problems with the computers running the virtual world system. The researcher visited the school after the software was installed and tested the equipment to verify that it would function correctly.

The dissertation research study began with students entering into the virtual world while seated in a computer lab with the rest of their German classmates. Each student used an avatar to navigate through the virtual environment. The use of avatars allowed students to have a virtual presence to interact with other students and complete the lesson activities. The avatars were created by the virtual world designer and chosen by the students. Their names were attached to the avatars so that it was possible to monitor their individual activities and behavior. The German language instructor was able to join the students in the virtual world to supervise the class. On the first day the students received their avatars and visited an orientation island which featured activities designed to help them learn how to move their avatars and change their clothes for different outfits.

After the orientation day was complete, the German students had four activity days in the virtual world over a period of two weeks at the end of the spring semester. There

were four role playing activities going on during each class time (classes were 35 minutes in length). The students divided up into teams consisting of four to six students (depending on class size) to accomplish this task. For example, one team or small group at the campground, one at the railway station, one at the restaurant, and one at the hotel. The students focused on elements of role playing in the virtual world. The teacher monitored the students by either traveling around the sim, or checking on the students in the classroom in real life. The researcher also monitored the students and observed the interactions which took place as the students participated in the role playing activities.

Once the study was approved, the researcher created a suitable virtual world simulation for the study, held an orientation day for the student participants, and then the students took part in four role-playing activities took place over a ten day period at the end of May, 2013. The researcher began the process of qualitative student interviews (Stage I of the methodology) at the start of the role-playing activities, and once all these activities were complete, the researcher administered the quantitative survey (Stage II of the methodology). The following text and photos chronicle the study activities, including those which took place at Clearfield high school.

Creation of World

The researcher created the virtual world village needed to conduct the study with the assistance of Nick Zwart, a Dutch virtual worlds' language professional. Mr. Zwart had previously built an island in OpenSim called "Chatterdale." Mr. Zwart made Chatterdale available to the researcher to be modified, and with the assistance of his son, Travis Parrott, the researcher changed the street signs and traffic markings, the signs on

the buildings, menus in the restaurant, posters inside the buildings, flags (from the English to the German flag), the police cars and numerous other details. Some examples of the changes made to the virtual world to enable it to look like a German village are seen in the images below:

(Note: Figures 1-12 are images (photos) taken in-world by the researcher.)

Figure 1. Arrival center in English and German version.

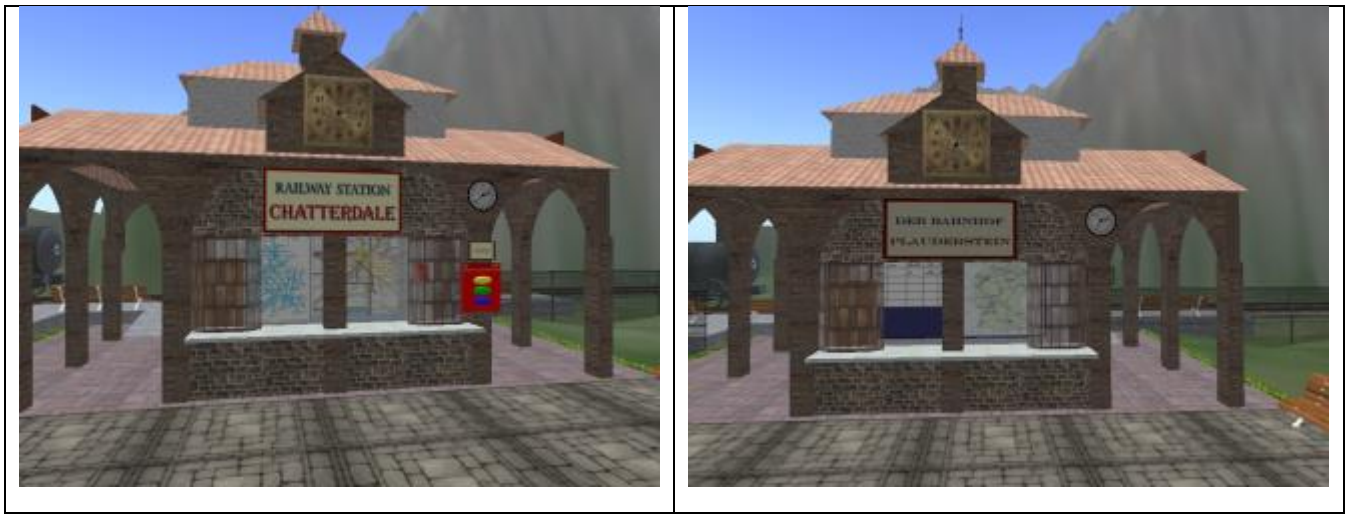

Figure 2. Train station in English and German versions

Note the differences in the station signs as well as the maps and timetables inside. The changes are similar to changes made throughout the village, amounting to roughly 200 changed signs, maps, traffic markings, vehicles and other objects**.**

Orientation

The students participated in an orientation day in the virtual world which allowed them to choose one of several stock male or female avatars, and make some minor modifications to make it reflect their own personal tastes. Once they receive their avatar persona they learned how to travel around the German simulated village by either walking or flying. They also learned how to talk using the voice functions, and how to participate in the typed chat discussions. This activity took place at Arcadia, a virtual world orientation island supplied by Nick Zwart:

Figure 3. Arcadia welcome center

The information board for students to use to learn how to walk with their avatar. The flags at the bottom of the sign the allow the students to choose their own language

Figure 4. Welcome sign with instructions

Figure 5. Information board. (Avatars learn how to use the controls to fly.)

Figure 6. Flying as an avatar. (Note the instruction signs in mid-air with additional tips about flying controls.)

Figure 7. Outfits/clothing for avatars

The place where the students can get new outfits for their avatars. They click on the image, upload the outfit to their inventory, and then put the new clothing on their avatar. Note that one of the signs here has remained in Dutch, the original language of the sim.

In-World Role-Playing Activities

After the orientation day, each class of students (German II, III, IV,) participated in 4 separate role-playing activities, including one at the train station, the campground, the hotel, and the schnitzel café. An image of each of these activities is provided below:

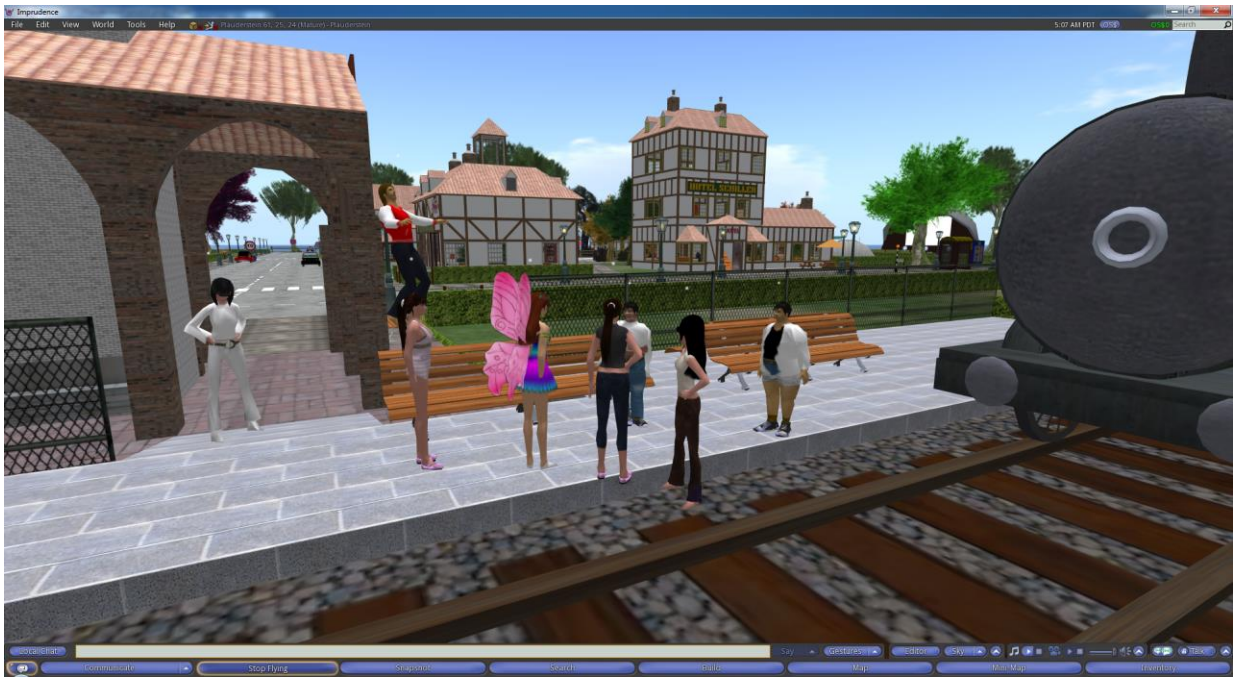

Figure 8. Train station role play.

The researcher is "flying." The teacher is in the white outfit looking downwards, and some of the students have changed their appearance in creative ways. In the background the Hotel Schiller can be seen.

Figure 9. Hotel scene. The person behind the counter is taking the role of the hotel *maître d'*. Some of the avatars are "stock" characters, others are in costume.

Figure 10. Campground activity. The researcher is in the foreground, wearing a different outfit than in other scenes.

Figure 11. Restaurant scene. Note the green icon slightly above one of the seated girls. That icon appears when one of the students is talking and varies according to sound volume.

These images give a visual representation of the role-playing activity. Each of the students played a role in the activity, either as a visitor/tourist to that location, or they took the role of the hotel *maître d',* the station master, the campground clerk, or the waiter at the restaurant. The German teacher created the scripts for the role-playing activities, and they are included in Appendix D, Role-Playing Scripts.

Stage I: Conduct Qualitative Interviews

As noted above, students from each of the 3 German classes at Clearfield High School participated in role play activities in the virtual world. The researcher conducted interviews with four students from each of the three German classes. The researcher

designed the interviews to answer the research question (RQ1): What is the experience of interacting in a virtual world like for the students who participate?

Following each learning activity in the virtual world, the researcher conducted a follow-up interview of a small number of individual test subjects from each of the three German classes. The instructor chose the student participants based on their course grades and her assessment of their perceived level of German competency (as per ACTFL standards noted previously.) The goal was to have students participate who are representative of their class in terms of academic performance and German language capability. The instructor chose students which she judged to be in the middle range of German comprehension and language facility. A mix of male and female students participated in order to prevent gender bias. Four students from each of the three classes were chosen for the qualitative interviews, which yielded a total of 12 students overall. This number of subjects reflected the constraints of the high school schedule since the interviews needed to be done in one class period each day.

The regular high school class allowed for roughly ten minutes of interview time per student for each interview session. Using this plan the students were only taken out of their regular German class for roughly ten minutes each per interview, and this did not adversely impact their ability to keep up with the rest of their German language coursework or affect their grade.

Questions for Qualitative Interviews

The researcher formulated ten questions for the interviews which are included in Appendix A: Student Interview Discussion Guide. The interview questions began with

general questions about the interview experience and then proceeded to questions about the lesson, the interaction between students, how comfortable the students felt about being "in-world," challenges the students experienced, what it was like talking out-loud during the activity, and personal reflections of the experience. The researcher designed the questions to be as open-ended as possible in order to capture the students' thoughts and opinions without them simply responding "yes" or "no." For questions that could elicit a "yes" or "no" response, the researcher added a follow-up question to gain a fuller description of the activity from the students. The researcher also attempted to not ask leading questions or overly influence the student's responses to the questions, but instead let them answer freely to express their own thoughts and opinions (Creswell, 2003).

Stage II: Conduct Survey

At the end of all four role playing activities in the virtual world, a survey was distributed to all the students in the 3 German classes, in their normal German classroom, during their regular class period. The goal of the survey was to find out about the students' perceptions and attitudes to this new technology. The survey was designed to answer the research question: (RQ2): What are the attitudes and perceptions of K-12 students to virtual world role playing activities in a German language course of study? The survey is a quantitative instrument employing a descriptive method of investigation.

The survey was handed out in class in paper form by the German teacher with the assistance of the researcher. The goal was to have complete participation by all students if possible. This would have consisted of 52 student subjects if all possible students participated in the survey, however only 42 students were available to take the survey due

to factors which will be discussed in the results section of this study. The sample for this survey would be considered a "convenience sample" (Campbell & Stanley, 1963). A convenience sample can be used for descriptive studies where the goal is to gather information about a subject when factors of cost and availability make a large randomized sample study impractical.

Survey Questions

The survey began with basic demographic questions to provide data on topics related to the research questions for the study, such as the use of gaming activities in the students' spare time and their thoughts about aspects of the virtual world activity. Students reported on elements of the lessons they received in the virtual world. Unlike the qualitative interviews, the quantitative survey questions were not open-ended in format.

The researcher modeled the survey instrument on a previous survey instrument, including a language study by Tourtellotte (2012) which was in turn based on a media study by Dudt (1985). The survey was modified to take into account aspects of the virtual world environment which the students participated in during the study. It began with questions concerning general demographic information and questions about the students gaming use and their grade in German. The survey instrument then explored the attitudes and perceptions of the German students in five areas which were discussed in the literature review: elements of the guiding theory (constructivism), functionality of the virtual world, comfort vs. stress while participating in the role playing activity, cultural aspects of the sim, and gaming and play aspects of the activity in the virtual world. These five areas were addressed through thirty-three Likert scale questions which attempted to gauge

students' thoughts and feelings on these topics after having completed four role playing activities over a period of roughly two weeks. From these answers, relationships between elements of gender, gaming experience, age, and grade level to aspects of the experience were described, but not in a way which implies causality, since this is a preliminary study in a new field with a limited population available to study.

The complete survey instrument can be seen in Appendix B. This survey attempted to address a number of issues related to the research questions and related to issues raised in the literature review from a different perspective than the qualitative interviews. It focused on elements of the theories of Piaget and Vygotsky in seeking information about whether the role playing activity was indicative of a personal learning or a social learning experience. It also examined some of the other social and personal elements of participants' attitudes and a Likert type scale is used to gain a perspective of the utility of the simulated role playing activities by the students. Vogt (2005) noted the way in which Likert scales are able to capture the attitudes and beliefs of a group. The Likert scale allows the students to choose the level of agreement they feel is correct for each questions, ranging from "Strongly Disagree" to "Strongly Agree" based on their own opinion for each question. Use of a five point scale allows the students to choose a neutral answer if they do not feel that they either strongly agree or disagree with the question. By examining the answers to the questions on the completed survey, it is also possible to find students who have responded mechanically by filling in one answer block or a using a pattern of answers.

There are also a few negatively worded questions on the survey in this study to help ensure against subject non-participation. That is, students couldn't simply choose to

agree with all statements without contradicting themselves. If a student chose the same positive response to all the questions, this would be clearly evident during the data analysis. This method was considered to be a valid option with older students of higher reading level (which is characteristic or our subject population) but might not be appropriate for some sample populations of either a younger age or from a socially disadvantaged social group because it requires the students to be careful readers of the questions in order to respond consistently on the survey (Barnette, 2000).

The Mixed-Methods Research Approach

The study's overall plan is called a sequential mixed-methods design. A "sequential design" refers to the way in which the data is collected, in this case with the qualitative interviews coming during the early part of the study, and then a survey administered at the end of all activities in the virtual world (Teddlie & Tashakkori, 2006). The goal is to combine the outcomes of two complimentary research methods and allow the diversity of student viewpoints to shed light upon the overall topic of learning in virtual worlds (Olsen, 2004). The use of a mixed-methods approach with strong qualitative components is seen as particularly advantageous when investigating constructivist learning affordances (Creswell, 2003).

Mixed-methods research often includes both quantitative and qualitative forms of analysis (Johnson, Onwuegbuzie, & Turner, 2007). Quantitative studies are based primarily in a positivist view of epistemology. Positivist philosophy contends that in order to have true knowledge the researcher must be able to *measure* the subject being studied. Measurement is therefore the basis of science, and an integral part of the scientific method

(Michell, 2003). Hence, anything which cannot be measured falls short of being examined using the scientific method. This would include qualitative research programs which are built on a foundation of constructivism as their primary form of epistemology (Tashakkori & Teddlie, 1998). The differing philosophical viewpoints on something as foundational as what constitutes knowledge can be seen as one of the main causes for a rift between researchers who believe that measuring things provides true knowledge (quantitative) and those who contend that there are many aspects of truth and knowledge which elude measurement and easy classification (qualitative).

Johnson and Onwuegbuzie (2004) argue for a more pragmatic approach than the purists from either side of the quantitative vs. qualitative debate over educational research. They note the value of hard data, which can be generalized from a sample to a larger population, but they also appreciate the knowledge which comes from rich descriptive data drawn from the observational methods of the qualitative approach. They see a mixed methods approach as one which can emphasize the strengths of both approaches, and at the same time minimize the weaknesses of the opposing models of study. Johnson and Onwuegbuzie note that the philosophical view of knowledge most amenable to mixed methods research is also termed "pragmatism" and can be traced to the pragmatic philosophy of William James, John Dewey, and Charles Sanders Peirce (Johnson & Onwuegbuzie, 2004, p.16).

For this dissertation study, the researcher began with the qualitative interviews coming during the early part of the study, and then a survey was administered after of all activities in the virtual world were completed. This qualifies the study as a sequential

mixed-methods study as discussed by both Teddlie and Tashikori (2006) and Creswell (2003).

Ethical Concerns

This study gained approval by the host university's institutional review board after a rigorous review process. Because this study utilized high school age subjects, it came under additional scrutiny by the review board. This included the board approval of the consent and assent forms which all 52 students provided before the virtual world activity began. Additionally, the Clearfield Area school district required approval of the study by the superintendent, the school board, and the high school principal. The researcher obtained clearances from state and federal authorities to interact with students, and cleared several "background checks" including one by the Federal Bureau of Investigation (FBI). These activities helped ensure the ethical treatment of students by the researcher while on-site at Clearfield high school.

The virtual world "Second Life" provided the basic platform which was adapted into "OpenSim" and used for this study. But as mentioned earlier in this study, Second Life is an "adult" media in both meanings of the word; i.e., participants are supposed to be 18 years old to visit the virtual world, and sexual explicit activities take place in-world. Wankel and Malleck (2010) note instances of sex with child avatars that took place at an early Second Life destination called "Wonderland," and they also discuss the topic of "virtual rape." The researcher chose OpenSim (instead of Second Life) for this study primarily because of these sorts of concerns and to ensure that no online predators could have contact with the high school age student subjects from Clearfield.

Site of Study

The proposed site for the experiment portion of the study was Clearfield high school. In addition to having the correct computer facilities, the researcher chose this school for a number of other reasons. It is close to the researcher's home and allows him to work out any technical issues with the Clearfield high school staff. It is also a fairly representative school district in terms of demographics and economic factors such as moderate income, a decent cultural mix of students, and neither inner-city or completely rural as a school district. This ensured that the students were similar to many other school environments in this country and that the results could be applicable to other similar school districts.

The researcher's primary reason for choosing Clearfield high school was due to a willing and qualified German instructor and because the school district superintendent was familiar with previous studies by the Kiski research team, and the superintendent presented the virtual world activity to the school board in a positive manner. The school principal also was willing to provide school access to the researcher as long as all the correct clearances and permissions were obtained for the researcher to have contact with high school age children. The researcher also verified that the school district was statistically representative of Pennsylvania school districts in terms of class size, demographic categories and SAT scores (Tomalis, 2012)

Data Analysis

Stage I: Qualitative Interview Data

As mentioned previously, interviews with students took place as part of the study process, over a roughly two-week period at the end of the 2012/2013 school year. Once the interview process was complete, the data was prepared for analysis. Interviews with the students were transcribed and checked for accuracy. Two devices captured the audio recordings for the sake of redundancy or technical problems. The researcher transcribed the interviews from the audio recordings. (see Appendix C.) Once all transcription work was done the interview data the researcher reviewed the transcripts repeatedly to get an overall sense of the meaning of the participants' responses to the qualitative questions. The researcher then began the process of separating out key concepts and common phrases. He examined the transcript for clear and distinct categories and terms used by the subjects and these were noted. From the categories of material separated out in this way the data was analyzed for material on specific themes.

At the end of this process of inter-relating common themes and ideas, an interpretation of the qualitative interviews was made which provides a summary of the experience of participating in the virtual world role playing activity. The researcher identified three major themes: what it is like to be a visitor or tourist to the virtual world village of Plauderstein, the learning process while doing the role-playing exercises in the virtual world, and challenges students faced in completing their tasks in the simulation. The results portion of this study examines these themes in detail.

Stage II: Quantitative Survey Analysis

The quantitative portion of the study produced data which the researcher evaluated using descriptive statistics. The data included information about the gender and the amount of time the subjects play videogames. The study data gives insight into the student subjects' attitudes and perceptions about the technology on a variety of topics such as: the usefulness of the role playing lessons, whether students felt they learned more from the lessons in the virtual world than if they did the lessons in the regular classroom, and whether the activity helped lessen anxiety for speaking German out loud. The data also showed if the subjects believe they primarily learned the information on their own in the virtual world (as Piaget would theorize) of if they learned the lessons by interacting with others (as per Vygotsky.)

Triangulation of Data

Triangulation is a method for comparing and supplementing data from the variety of sources employed in a study. Denzin (1978) identified one form of triangulation as "data triangulation" when the consistency of results are compared and also contrasted from more than one source of data. An additional goal of triangulating the data is to seek to uncover data from one source which is not supplied by the method of the other source.

Both of these elements of data triangulation came into play in this study. The qualitative interviews allowed the students to express themselves in their own words, not simply make choices about topics chosen in advance by the researcher (which was true of the survey.) But the survey provided more concrete findings on such topics as the weekly

time spent playing videogames, or the percentage of students who thought an activity was fun (or not).

Both sources provided information on similar themes and insights into what the overall experience is like and what the students' attitudes and perceptions about the activity were. The researcher's goal in combining the insights from both of these modes of inquiry overall is that a conclusion can be drawn which provides a greater understanding of the experience, attitudes and beliefs of the student subjects. The researcher looked for common threads in the data collected from both sources of information and attempted to provide further light on a new subject and form of pedagogy. This should provide information for further studies of either a qualitative or quantitative nature.

Issues of Trustworthiness, Reliability, and Validity

The qualitative portion of the study benefited from a quality control process which has been termed "member checking" (Barbour, 2001; Lincoln, 1985). This process includes having the researcher summarize the information given in interviews by participants and question the subjects to verify that what they have said is an accurate description of their thoughts and feelings on the subject (Creswell & Clark, 2007). This was done by the researcher with the interviewees as part of the qualitative interview process by asking the same questions in each of the interviews, though in a slightly different form, throughout the interview process. This method helped to decrease the amount of incorrect data and findings which can be attributed to the student subjects in their interviews, and increase the quality and trustworthiness of the results.

The survey gains reliability and validity by being constructed to address the elements of the guiding theory and virtual world technology issues which were discussed in the literature review. Because these elements were addressed with clearly written questions which were designed to address topics in the literature the survey meets the requirements for "face validity" as defined by Buddenbaum and Novak (2001). Face validity is achieved when a measure "is a reasonable one. It appears to be measuring what it is intended to measure" (Buddenbaum & Novak, 2001, p.110).

Additionally, two fellow researchers with experience in communications research methodology reviewed this survey and examined the survey questions for internal logic and fitness of application to the theory and technology issues it was designed to address. Two doctoral faculty members also reviewed the survey administered to the students. This provides the survey with "expert jury validity" also known as "jury validity" which is achieved by having the survey vetted by experts in the subject matter (Reinard, 2006, p. 137). One faculty member who reviewed the survey is a doctoral level statistics instructor, and other member is a retired former chair of the department of communications at the researcher's university. Both reviewers made suggestions concerning the survey which were incorporated into the final version administered to students.

In addition to issues of validity, Buddenbaum and Novak (2001,) note that the reliability of a survey can be enhanced if careful measures of survey administration are followed. This pertains to the collection of the survey data and the coding of the surveys. In this study because the sample size is small, the researcher was able to hand-code the surveys and check for errors and improperly filled out survey sheets. The researcher was

present for the administration of the survey and personally coded each survey data sheet. This process also enhanced the reliability of the study.

The researcher also designed the survey to have similar questions asked from both a positive or negative viewpoint. This design (which was suggested by a fellow researcher) allows the researcher to judge if a student filled out the survey thoughtfully, of if they simply went down the survey form checking off "Strongly Agree" or "Agree" on for every question or statement on the survey. During the coding process the researcher can clearly see if a student filled in a survey in this perfunctory manner, and reject that student's survey responses. The researcher did not find any surveys from the students in this study who simply checked off boxes in that manner, so the answers given by all 42 of the survey participants were judged accurate reflections of their thoughts and perceptions, and none of the student surveys were rejected.

Summary

The overall plan of the research method was to provide further information about the activity of learning in a virtual world for students of high school age. Because this is a fairly new technology there were numerous technical hurdles to overcome in carrying out even the most basic type of study in the field of language learning in virtual worlds. This study employed a mixed- methodology to attempt to gain as much data and insight into the subject as possible. The researcher believes this methodology captures some of the issues and affordances of this new technology, particularly as seen by those who actively participate in the study, and who come from a generation which has "grown up digital"

and therefore has a unique perspective on the benefits or problems associated with this nascent field.

CHAPTER FOUR

RESULTS

Introduction

This chapter explains the results gained from the two methods employed in the research design. It provides the data gained from both methods employed in the study, i.e., the student interviews and the survey instrument. It concludes with a section devoted to triangulation of the data from both sources, contrasting and comparing the data received from each.

The participants in the study are from Clearfield high school. A total of 12 students participated in the qualitative interview process, (6 males and 6 females). Two male and two females were chosen for the interviews from each of the second, third, and fourth year German language students (German II, III, IV classes). At the end of the study, 42 students took the survey (16 males and 26 females). This number is less that the total of 52 students who participated in the study overall due to limitations discussed later.

It can be especially helpful in the early stages of studying a new form of pedagogy such as virtual world language instruction to employ a variety of methods to gain as much information as possible. As mentioned previously, the results of the study include data from Stage I: Qualitative Interviews, and Stage II: Survey. Following these headings there is a summary which compares the data from the two sources and provides triangulation of the results.

Qualitative Interview Results

Three general themes emerged from the student interviews: what it was like being a tourist or visitor to the virtual world German town of Plauderstein, what it was like to learn German in a virtual world, and challenges the students' faced in the virtual world. In each of these themes, the students mention the topic of "fun" as their main descriptive term for what the activity was like.

These individual themes were analyzed further in the following graph:

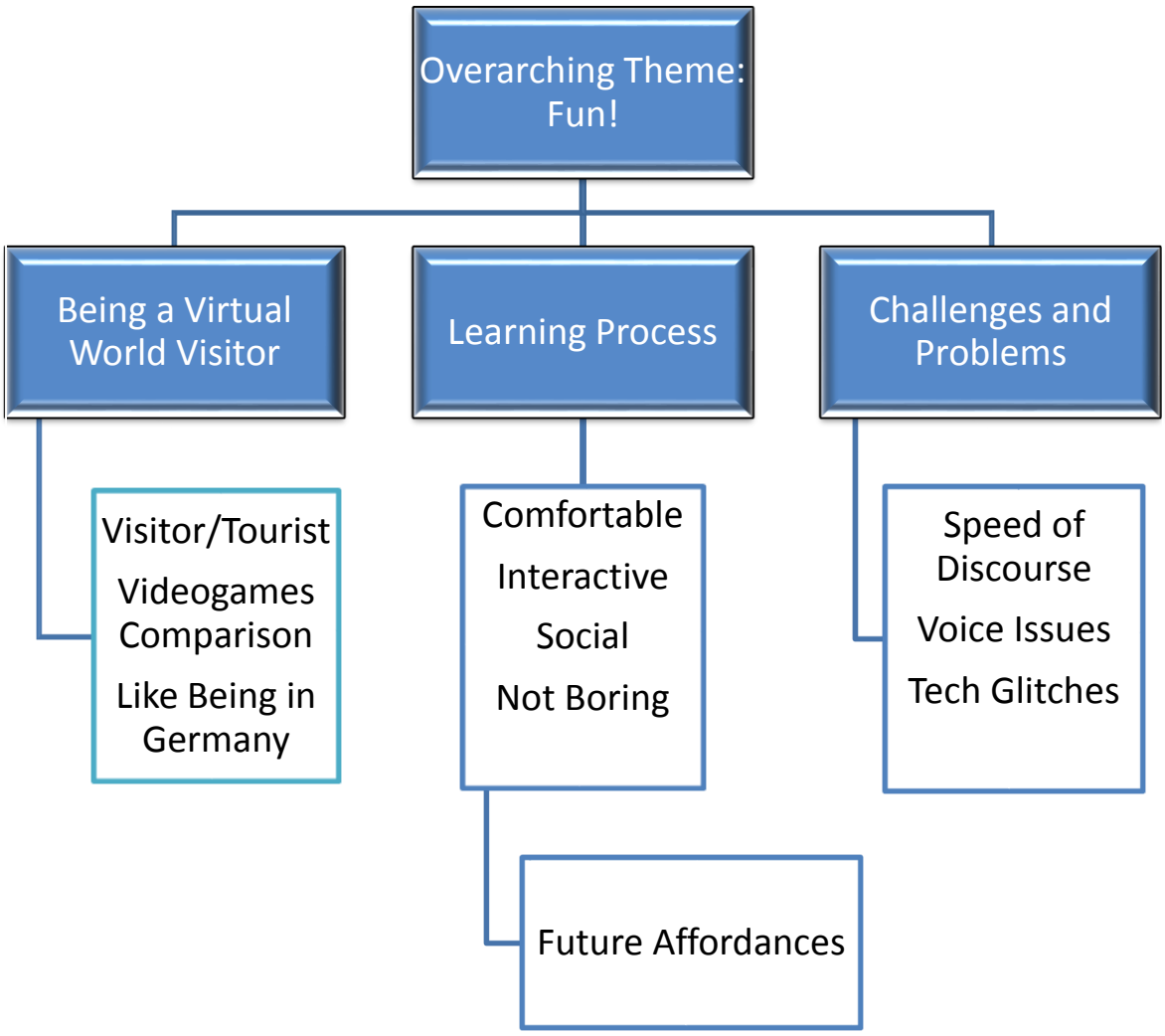

Figure 12. Themes from student interviews.

The following is an explanation of the three themes gleaned from the interviews and shown in the table above. Students interviewed are identified by a number and gender as in Appendix C: Interview Transcripts. Note also that the students often refer to their teacher, Mrs. Simpson, simply as "Frau," and that this is a short version of the more formal term "Frau Simpson."

Being a Virtual World Visitor

Some of the students' compared being in virtual Plauderstein to being in Germany for a day, and several of them thought that this activity would help prepare them to be visitors or tourists in Germany if they traveled there in the future. The students were each assigned a "stock" avatar which they modified on the orientation day to make it reflect their personal preferences. These avatars then "teleported" to Plauderstein and arrived at the customs station in much the same way real tourists would arrive at an airport or train station if visiting a foreign country. From the customs station, the students spread out into different locations to begin the role-playing activity. Doing this activity as an avatar is quite different from the students' usual classroom role-playing exercises, which they typically do while sitting in a regular classroom and "pretending" to be in Germany. This difference is reflected in the answers to the interview questions given here.

> I think it's something that it would be good to do just a little bit of before you would go on a trip like that . . . #12F

The students mentioned some of their impressions early in the interview process:

> I thought it was fun and cool to walk around…go from place to place, and see what they had to do, and stuff... #2M

The design of the simulated village encourages the student visitors to feel like tourists, since the only place a student avatar can "teleport in" is the customs house *(die ankunft).* Every time an avatar arrives in Plauderstein that person must literally "pass through customs" to enter the rest of the village.

The students mention that they felt like they were in Germany after they arrived in the town. Part of this experience was the feeling that they were moving around in an actual German village. The interviewer asked the students if anything was difficult in their first lesson in the virtual world. Student (#4F) answered, "Probably just learning how to move around, and travel throughout the world."

Once in the virtual world the students needed to consult maps, talk with their friends, and physically look around and try to locate landmarks in order to participate in the activity, and they felt that this activity was like trying to find their way around in a foreign country. The interviewer asked if the students used a map at the customs house to find their way around: In response student #2M said, "Most of it was on the script. I had to look up one thing to get to the Bahnhof."

Many of the student respondents, both male and female, related their experience in Plauderstein to experiences they have had in playing videogames, and felt that the simulation would be developed to be more like the games which they enjoy playing on the computer, gaming console, or other electronic device. The students mentioned that in their regular German classroom, just one person at a time is supposed to be talking, and the interviewer asked if more than one person could talk in the virtual world activity:

#1M. Yeah, it was pretty fun. Especially when you're at one center, and you could only hear how many meters the other people are away. So only those group of people could actually hear each other. Basically, it makes a better interaction.

The interviewer asked if the virtual world worked better for role playing activities than the classroom, because it would be hard to have that kind of activity with four groups at once in a regular classroom because of the noise:

#1M. Yeah, yeah. So even in the game, if they're paired up, so they're not close enough, it still works better.

Note the expression the student used in his response: "even in the game." The learning activity was not described as a "game" by the German instructor or the researcher, but the students used that word to describe it frequently. In response to a question which asked the students to compare a role-playing activity done in the classroom to one done the sim, one of them said:

#3F. Well, we do it, but it's just not, like, real. . . but in the game it's real.

Another student expressed his views on the sim being like a videogame in this way:

#7M. It's well put together, actually. I haven't played that many virtual world games, but this one is pretty good. The stuff you can do on there is pretty neat.

The interviewer asked another student how much he interacted with other students in the sim:

#9M. Like I was saying, I was familiar with the game, so I showed them how to do all the things I had discovered in the game. But as far as the dialogue was concerned we all just followed the script and it worked out pretty well.

Students talked about Plauderstein being a virtual world game, or a role-playing game or simply as a videogame, and drew comparisons to other commercial video games like The Sims or Runescape as in this portion of the interview,

The interviewer asked one of the male students who was an enthusiastic gamer if he had any problems doing the lesson in the virtual world:

#7M. Nah, I was kind of laughing at Frau's avatar, but that's about it. I've played other games like it before…

The interviewer asked him what other virtual world games he had played that he would compare to being in virtual Plauderstein.

7M. Oh, jeez, (laughs) like Runescape in 5th grade. Just like multi-world games there's a world and different people can log on from different servers and it depends, there's German servers for Runescape, there's English servers it, there's Spanish. This could probably be turned around for German students wanting to learn English. It's probably like dropping into Germany to be on your own devices – you've got to speak it.

Two of the students mentioned how they adapted the controls on the keyboard to mimic the controls which they used in their "other" computer games and described what

he did as an adaptation of the game, employing the 4 keyboard keys WASD which are a common mode of controlling game characters with a players' left hand:

> #1M. I like the fact that I figured out that you can use the escape key and then use the WASD keys – and that's how it is in a lot of games I play, so… I thought "I'm gonna click it, escape, for no reason, because it closed down the chat bar at the bottom and I was able to use the WASD keys. I don't even know why I did that … but … (laughing) "Ah, that's handy!" and it was easier.

This comment show that at least some of the students felt Plauderstein was a game that they had been asked to "play" while learning German.

The Plauderstein sim compared favorably to videogames that some of the students play. They made positive statements about the game; how entertaining it was, and that they thought for a virtual world game it was quite advanced. One student (#8M) said, "I think the creator did a really good job and I think it's going to be able to be used for future applications." Another student (#9M) expanded on this idea by saying, "I think it's pretty neat. I've never played anything like it. It could be a really big thing – this is where everything's going – all the technology, people want to get involved that way. .."

It should be noted that most of these comments are from male students. But not all the students who referred to the learning activity as a game were males, two of the female interviewees also referred to it as a game. One female student (#3F) compared the role-playing activity done in Plauderstein to role-playing activities done in class saying, "Well, we do it, but it's just not, like, real. . . but in the game it's real." Another female student (#6F) said, "It was interesting, new, kind of advanced. Figuring out how to get around

was different from any videogame I've done before." This shows that for some of the male and female gamers in the class there was the assumption that the learning activity was a "game" that they "played" as opposed to a "learning activity" which they were doing in a classroom.

The student quoted above (#6F) also described the "game" as "interesting, new, "kind of advanced." These comments about the activity were echoed in those of other students who saw the Plauderstein sim as a new development in language learning. They saw it as different from what they were used to and a new way that learning and playing could be combined together. Several of the students specifically mention that they think this is the way students in the future will use virtual world technology as an aid to learning and they were happy to be part of the initial testing in America and some of the first to try out this kind of virtual world learning activity.

Being in Plauderstein gave the students a new appreciation for what speaking the language in the country of Germany might be like. Student #2M said she thought being in the sim gave her an understanding of what "German was like, how Germans talk in the real country"

The students enjoyed being in the sim, acting as if they were visiting tourists who were experiencing a different culture. As student #2M said, "I thought it's pretty fun because you get to see how Germans, um, do things different than we do."

Learning Process

The students made a number of positive comments about the process of learning German in the virtual world, and they had some reservations about the process as well.

The students saw the role-playing activity as a way to become more fluent in German, and they saw the simulation as a tool to achieve greater fluency as opposed to simply learning more rules about correct German usage. They learned what it was like finding a vocabulary word quickly, and they also learned about sentence structure. Not only did the students have to have the correct word ready in time to speak, they had to observe the rules for German sentence structure which differ from English substantially. German sentences, unlike English, often place the verb near the end of the sentence, which is difficult for English speakers to adapt to when crafting sentences.

During the role playing activity, the students often had to substitute an English word for a German word that they didn't know in the middle of a sentence. The students said that they would talk in German and then add an English word for a German object or expression, and hope that the person they were talking to understood what they were trying to say. In this activity the students would use all the words that they knew and then add an English word or two as needed in order to complete a sentence or phrase. They thought this is what they would have to do in Germany if they traveled there also:

> It definitely feels more like you're in Germany or something, where you have to speak German, 'cause most of the time if we don't really know a word, if Frau's not available, we can just put in the English word for it. But otherwise you are kind of forced to speak German. In class if we're speaking, and we don't know the word, we can say "What's the word for… swimming pool, or field or something like that" But in there, especially if Frau's not available, we have to think about it or look it up or something (#7M.)

One of the ideas the students consistently mentioned was that they felt comfortable in the virtual world. The students mentioned that speaking out loud in the sim with their friends let them relax and enjoy the activity without the stress of feeling like everyone in class was watching them and noting their mistakes in saying things in German. As one student (#2M) put it "you can talk – feel more comfortable talking out loud, with my friends than just in a regular class…"

The learning experience for the students was less stressful than some of the other German learning activities which they participate in during their regular German classes. This included being with their friends rather than just responding to the teacher and being in the sim as an avatar so that if they made a mistake it was one step removed from them personally. In the simulation they were with their friends and having fun, and if they made a mistake trying out some German expressions of vocabulary, they didn't get embarrassed by their error or immediately marked down on their grade by the teacher. As one student (#8M) said, "it was a lot easier talking to our friends than to an adult who is judging you."

The students felt that part of the reason they felt comfortable speaking German in the sim was because of the relative anonymity which being an avatar gives a person. The avatar is a representation of the student, but the avatar provides a bit of cover for the student which many of the students appreciated. The interviewer asked how this activity compared to speaking out loud in the regular classroom, and if the students feel more or less comfortable speaking out loud:

#5F. I feel more comfortable, because not everyone is staring at me, they're looking at my avatar. In class, everyone's looking at me so that's a little more nerve-wracking.

5F. We all get along in there so nobody's mean to you if you mess up or anything. We all just try to help each other.

This statement reflects a number of comments which the students made about the activity. They felt like they could experiment with German words while hanging out with their friends, and this would not result in a lower grade because they were making mistakes in the use of German vocabulary or pronunciation.

This learning activity gave the students a stress free opportunity to earn their "speaking points" which are one element of their grade in German. "Speaking points" are points which count towards each student's grade which give them credit for saying a German word out loud in a sentence. The students felt more comfortable earning these grade points speaking out loud in the sim as an avatar than in the regular classroom, and several times students said that they liked earning speaking points in virtual Plauderstein, as student #1M said, "…, it helps you learn. It helps with our grade, with our speaking points and all that. We don't get much of a chance to get speaking points and working with friends kind of helps us with that."

Another positive element the students experienced in the virtual world activity was a greater degree of interaction or dynamic activity than what normally takes place in the classroom. The students liked the active nature of the role-playing lesson, they like the "hands-on" aspects of the activity, and they thought it was fun to move around from place

to place and interact with the world inside the computer. Student #12F said, "I like that it is more interactive. It had you right there paying attention to the lesson." It might seem a bit unusual that an activity which takes place on a computer screen could be more interactive than sitting in a classroom but one student said,

> I think this is quite useful and if they could make it more interactive I think it would make it more fun to play. I think whenever something's fun it's easier to learn whereas if you're sitting there getting the same old thing out of a textbook it's kind of …boring, and you just fall asleep. (#10M)

The student mentioned that he liked it better than sitting in the classroom and working from a textbook. What is interesting about this comment, is that the students *were* sitting in a classroom, working from a prepared, written script provided by their teacher. But they felt like they were actually moving around, talking, and interacting.

The students talk about being active learners, working with their fellow students as well as the teacher. Student (#7M) said,

> There is a lot more interaction between everybody, instead of just one person and the teacher. Nobody could hide. There is always everybody included in what you were doing so everybody had to do something.

The students like the idea that everyone can participate and that it is centered more on interacting with friends. The students felt this in some ways was preferable to what normally takes place in their classroom.

> In the real classroom, Frau normally, since she's the teacher, she gives us guidelines and basically she's leading us and she's the teacher. But in the virtual world we're the teachers, and we're showing each other how things work, and then we're kind of running the lessons ourselves.

The students felt that this was something which made the learning process in the virtual world different from regular class activities and in some ways better. They felt like they were learning from their peers and not as dependent on the teacher for all the input. As student #4F said, "In the virtual world, we're the teachers."

Language instructors speak of "negotiating meaning" which is the process language students use to interact with others and learn new words, phrases, and language concepts (Donato, 1994). One student talked about the way that the students in the sim would work on negotiating the meaning of the lesson on their own, but sometimes they would fall back on their teacher for a correction or more information, as he said,

> … we just stood there and talked. And every now and then you saw Frau. And on my screen she didn't load right away, so she was just like a glowing ball. And then she'd come in and I'm like "Oh, hey, it's Frau." (laughs) …She'd listen and if she was there she would help us with, whatever was the word.(#1M)

The students felt that the simulated activity fared well in comparison to the typical classroom activity, especially when they were trying to practice vocabulary lessons and carry on a conversation. One student (#9F) said, "For just the conversations, it's great!"

The students also said that in the virtual world they felt free to experiment and play around with elements of the lesson and with activities in the world. They could try out

their knowledge of German vocabulary words in a real situation and experiment with constructing phrases and dialogue. Student (#1M) said, "It was really fun. I learned new words, like "camping-fire." I had to basically put that together because I learned fire was "feire" and I knew camping. . . other things, basically working as a team and what we did was co-operation."

Other students said similar things about this process of experimentation. Because they were relaxed and among friends, they felt like they could talk freely and express themselves in new ways in the German language. They could experiment, play around, and try out new words and modes of conversation without being as worried about making a mistake. If they got stuck on a word or phrase, their friends could jump in and help provide assistance or offer an alternative.

The students mention that being in Plauderstein was a way of learning German while also spending time with their friends socially. Like most teenagers, these students place a high value on their friendships and relationships with their peers, but talking with their friends and interacting with them socially is generally discouraged in the regular classroom. But as one student (#11F) reflected on what it was like in the virtual world she said, "You can talk with your friends, and you are supposed to talk with your friends, which is different from the classroom." The phrase which the student used here "you are supposed to talk with your friends" is a key concept to the success of the use of the simulation as a learning activity. Another student (#8M) put it this way: "We have opportunities in class to speak with our peers, but this was obviously one hundred percent with our peers." He explained further,

> #8M. Normally we go about with written lessons, book lessons and workbook packet lessons and those are talk with the teacher and individually answer or answered as a group (which is kind of a rarity.) This was obviously completely peer focused, so we were working classmates the entire time and we really didn't have direction by the teacher – she was there to guide us if we needed help but we didn't have her as a backbone for the activity.

These student comments show that they enjoyed the social aspects of Plauderstein and felt this was one element that made the sim a fun place to be. By coming to the virtual world with their classmates, the students participated in an interactive social environment with their friends which promoted active and independent learning.

During the interviews the students expressed their opinions about the learning process in the virtual world at length. They felt that doing a role playing activity in Plauderstein is engaging and fun, and much more interactive than merely sitting in a classroom responding to instructions from their classroom teacher. The interviewer asked the students to supply several words that they would use to describe what the virtual world activity they had just completed was like:

> #8M. Entertaining, the opposite of boring, it was a lot better than sitting in class because we had something to do rather than just looking at a screen or listening to the teacher all day. Probably, fulfilling in a way, because I had expectations for it and they were met.

Other students agreed:

#10M. I think this is quite useful and if they could make it more interactive I think it would make it more fun to play. I think whenever something's fun it's easier to learn whereas if you're sitting there getting the same old thing out of a textbook it's kind of …boring, and you just fall asleep.

#7M. It's less boring, as I said before. It's not as monotonous. It's not just raise your hand, get called on, and answer back. It's a constant flow of everybody doing something and everybody listening to the person. Even if you're not exactly thinking about what their saying, if they did it right, you're subconsciously listening and if they say the wrong word you pick up on it, and you try to do it when you go through their part.

But although student respondents had many positive things to say about the virtual world' learning process, they didn't think this should replace their typical classroom experience completely. Instead the students thought the Plauderstein activity should be a complement or adjunct to what they normally do in class. The students mention consistently that this would be a fun diversion from their typical German lesson regimen. They could study and learn new words and phrases in the classroom as they normally do, but when they had completed a unit of new German words and phrases they could go to Plauderstein and try out those new words and phrases in a life-like situation. One student (12F) felt that this activity could be integrated into their typical nine-week grading period:

I don't think I'd want to do it all the time. But it's a nice thing to mix up once in a while. It would be good if you did your traditional language stuff and once a nine-weeks come in towards the end and do different scenes of things that you've

> learned in that nine weeks. So you would do it as more of a thing to refresh you on what you've learned over the nine weeks, and give you time to put your listening and speaking skills to use.

This accurately describes the role the students think that the role-playing activity could have as a useful addition to the traditional German classroom learning process.

Challenges and Problems

The students faced several difficulties or challenges while doing their German lessons in the virtual world. They mention such issues as speed of discourse, trouble finding their way around the sim, and computer technology glitches as being problems which they encountered during the learning activity.

Changing the sentence structure in "real time" challenged the students' knowledge of syntax and ability to move quickly from the English script to spoken German, as one student (#5F) said,

> It was a bit difficult because you have to remember where the verbs go. If it's written in English, German word order is completely different so you have to put it together yourself.

In discussing how they talked in German in the simulation, the students expressed this idea consistently. They said that they had to quickly come up with words and phrases in a way that differed from rote exercises done in class, and that this experience stretched their German language abilities and forced them to improvise and experiment with new ways of speaking and interacting with their fellow avatars in the activity. In spite of this

difficulty, the students appreciated the opportunity to improve their fluency as one student (#7M) said,

> Instead of being real choppy, and dissecting your sentences you can just keep on going, keep moving, and if you don't know a word, or how to phrase a word or two, you can just say it in English and move on, and the second time through somebody else will know it.

In discussing how they talked in German in the simulation, the students expressed this idea consistently. They said that they had to quickly come up with words and phrases in a way that differed from rote exercises done in class, and that this experience stretched their German language abilities and forced them to improvise and experiment with new ways of speaking and interacting with their fellow avatars in the activity. One thing which the students quickly realized from visiting virtual Plauderstein is that they would have to both know more German words and phrases and be able to speak more quickly in German if they were going to carry on a real conversation with other German speakers in Germany." One of them said,

> … when you're interacting like this it puts you in that kind of real-life situation where you really wouldn't be able to sit there for ten minutes and try to think of what the heck you're going to say. You have to hurry up on the spot and modify it to do the best you can. (#7M)

> #8M. I think we did a lot more work on verbal communication than we normally would when it's written, or written before we speak it. This was kind of off the top of our heads. This was a lot more straight-forward and unprepared.

#9M …speaking is difficult, but when you're in an environment like this when it's not really like talking with a native German seriously, you can make mistakes and be corrected and it will still be fine.

The interviewer asked one of the students if she adapted the way she interacted in the language with her classmates in the virtual group activity:

#12F. Yeah, because you are doing it more like you would if you went to a foreign country and you didn't know how to exactly say what you wanted to say you would modify it to something which you do know how to say.

There were some negative comments which the students made about some aspects of using the sim to learn German. Some of the students found initially found it hard to move around and get to where they needed to go.

#6F. Figuring out how to get around was different from any videogame I've done before.

The interviewer asked what videogames she played:

Not really very many – but I know the Sims game which is kind of different with the avatars and stuff it was – a little harder to figure out how to get around and talk, but once you got the hang of it, it wasn't hard.

Some of them initially had trouble finding the spot where the rest of their group members were. These "navigation" issues were generally not mentioned again after the first session or two when they learn how to make the avatar move around better.

The students also mentioned initial issues "debugging" the use of voice chat with the headset. It was hard to carry on a conversation if the microphone and headphones weren't working properly, and the process of getting the software to function properly for voice chat was challenging for the students and for the teacher. In response to the interviewers question about the use of voice chat the students said,

> #3F. We had some problems with the voice when we got started, but that was about all.

> #6F The (activity) yesterday wasn't as good because there were some issues with speaking – someone had trouble with the voice working. But I think it was easier when there were more people in the group. I like working with bigger groups better.

A number of students mentioned that they had problems hearing their classmates. These issues were either related to the software or hardware malfunctioning. The interviewer asked the students how well they were able to interact with their classmates in the role playing lesson they did that day:

> #1M. It went OK, but sometimes it got annoying, because you could hear the surround sound. Other people, I don't know who's mike, but other people in class you could hear. It would go through their mike, and then come through mine, and that got a little annoying with that factor.

The interviewer asked the student to explain a bit more:

> #1M. It's picking up a lot more than just my voice. It got real annoying…

Some similar comments were made by other students to this line of questioning:

> #9M. We were across the street from another group, and you could still hear the voices, so maybe you can spread the activities out farther so people couldn't hear each other and get distracted.

> #2M. Sometimes I couldn't hear them, when there was a problem with the microphone.

The students' mention that they often worked together to resolve those problems so that everyone in the group could talk, hear, and participate. They helped each other resolve both technical challenges and work through language learning problems. One of the students (7M) mentioned that the biggest problem for him was "Ah…, staying on task" (laughs.) "There was a lot to do in there, but it made it a lot more fun. It makes you want to go back to it instead of going back to the boring classroom." This student explained further,

> #7M. I actually changed my settings, I can press the space bar and talked that way. I'd never used a mouse wheel to talk before, so that might make it a little easier. And, it wasn't really hard talking in the world, but with so many people in the room I could hear Kyle talking right beside me to his group right beside me.

The interviewer asked how he figured out a way to change the voice controls so that the space bar would turn the microphone on and off:

> #7M. I went into "Preferences" to the settings – messing with the settings while other people were talking, so I set it up to be like my other games for talking.

This comment illustrates that some of the students felt the sim was so interactive that they got distracted "playing around" and neglected to focus on the lesson they were supposed to be learning. This was not the general consensus of the students interviewed and only a couple of them mentioned this problem in the interviews.

The students also mention some other glitches and problems related to the world. Some of these included problems with some of the interactive elements. There is a maze game in one corner of the sim, and a number of the students got trapped in the maze and couldn't get out. This led to one student saying that perhaps that could be another German language learning activity

> #10M. I think you could do that and it would add more to the activity. You could make up odd jobs for people that would help you learn vocabulary. Or like at the maze – you could have one person up top giving commands and the person in the maze would have to follow. That might work too.
>
> You could also teach people how to learn directions. They could follow the directions and if they're wrong come to a dead end and have to turn back and try to find the right way.
>
> The interviewer asked this student if he had any final thoughts about the sim:
>
> It's a little laggy – but overall I think it works pretty good. (#10M)
>
> (Researcher's note: "laggy" is gaming jargon for "slow to load, or rezz.")

Quite a few students had technical problems with the chairs and cars which caused amusement among their classmates. Sometimes if a student sat on a chair at the restaurant or hotel the software (animation script) malfunctioned and the student avatar ended up floating sideways on top of the chair, submerged half underground, or teleported out of the building onto the yard outside. The interviewer asked them to describe some of these issues:

> #1M. It was pretty fun. I was stuck in the Schnitzel Cafe, or whatever, but, one of the glitches – like if you sat down you were sideways on the chair or floor

The interviewer noted that there were some technical issues with the "scripting" which animates the chairs:

> #1M. Yeah, I was walking but halfway in the ground, and as I kept walking I came up out of the ground (laughs). Then another one was after we were done, I went out and sat in the car, but it sat me in the ground under the car and I could not get back up – I couldn't fly, go anywhere …so I had to teleport to another group and then teleport back.

In general, the students spoke positively about the learning experience in the sim as a whole. They do mention some problems (mostly minor technical issues) but these didn't stop them from having fun and enjoying the learning activity. When asked about challenges, they most often mention having to quickly translate the role-playing script from English into German. But even on this topic they enjoyed doing this more than in the classroom because they were with their friends having fun. In general students think that

the virtual role-playing activity could be a useful addition to the traditional German classroom learning process.

Future Affordances

The students offered comments on the future use of this technology. They talked about the possibility of meeting real Germans in the sim to practice their language skills together. One student in the class (#11F) was an exchange student from Germany, and she commented on what it might be like to do this,

> I think that is cool. They (students from Germany) could come and the people that don't really know the language they could come and help them. I think it would help the Americans who want to learn German, because you could have two or three persons there to correct them and help them.

Another student also thought it would be a good idea to have "real" German students help the American students to learn the language because there might be a variety of dialects which the Americans students haven't heard since the only experience the American students have had thus far is talking to their teacher. The interviewer asked if the student thought it would be helpful if real German students from Germany) were able to interact with the American students in the sim. He responded,

> #9M. That would be pretty interesting, because then they could help and make corrections. Maybe they don't speak exactly the way we learned it because they might have different dialects.

One other point which the student from Berlin made was that it would be better for American students to interact with people their own age (as opposed to an adult German teacher) because it would be more relaxed and fun to get to know students from Germany who were their peers. Student (#11F) said, "Yeah, I liked it better than a real classroom because you can meet your friends and talk to your friends. You want to do it more because you can be with your friends."

In general students think that being in virtual Plauderstein is a fun way to learn German, even though it is a challenge to talk quickly and even though the technology could be improved.

Quantitative Survey Results

The second part of the research study focused on data collection using a survey developed by the researcher to gauge the student participants' opinions about the learning activity. The students took the survey at the end of the study, after completing the last of four role-playing activities in Plauderstein. The survey instrument can be seen in Appendix B: "Student Survey." The results of the survey were hand coded by the researcher and recorded in an Excel spreadsheet.

As mentioned previously, of the total of 52 students who participated in the research study, there were 42 students who were able to complete the survey methodology. There were 10 students absent on the days the survey was given, due to other in-school activities, school trips, or illness. The reason 10 students were absent on the day survey took place was due to this being the last week of the high school year, and

the senior students were preparing for graduation and other students had end of the school year activities and trips.

The discussion of the survey results is organized according into two sections: The demographic information gained from the survey provides details about the composition of the survey sample, and the topics which follow address the second research question, (RQ2): What are the attitudes and perceptions of K-12 students to virtual world role playing activities in a German language course of study?

There were 38 questions on the survey, beginning with 3 demographic questions which captured information about the students' age, gender, and high school grade level. Next there were 4 questions designed to gain information about the students' "gaming" habits, since virtual world's activities and technology are closely related to the field of video gaming. The remaining 31 questions dealt with issues related to the research questions of the study and sought to ascertain the students' thoughts and opinions on the utility and functionality of the simulation as a German learning tool.

Demographics

Of the students who completed the survey, 26 of the students were females, and 16 were males. This number reflects the demographics of the upper level German courses at Clearfield High School. The German teacher has reported that there are typically more female than male students opting to take German as a foreign language. The students range in age from 15 to 18 years old. In German II there are two 15 year old, fifteen 16 year old, and two seventeen year old students. In German III there are six 16 year old

students and four 17 year old students. In German IV there is one 15 year old student, five 17 year old students, and seven 18 year old students.

Video-game Playing

Because the origins of virtual world technology can be traced to the world of video games, and because this virtual world activity shares the same technology and many of the same sorts of activities found in video games, the researcher collected data on the video game habits of the subject population. The survey found that 21 students play videogames regularly. This is exactly one half (50%) of the students who took the survey (n= 42.) Of this number, 13 were male and 8 were female.

The percentage of males who play videogames is much higher than the percentage of females. For the males, 13 out of the 16 boys in this study (81%) play videogames regularly, but only 8 out of 26 females in the study (30%) play videogames regularly. This means that 50% more boys are gamers than girls in the study. The researcher expected the percentage of male gamers to be higher, but the difference in this sample population of students was significantly higher and notable.

The amount of time the students play video-games each week varies by gender, see table below:

Table 1

Gaming Hours per Week by Gender

Hours/Week	Males	Females
0 --- 3	2	6
3 --- 6	3	1
6 --- 10	0	1
10 or More	8	0

This table illustrates the finding that the majority of the males who play games do so for many more hours per week than the female gamers. Eight of thirteen male gamers play over 10 hours per week. That is roughly 62% of the males (n=13) who play more than 10 hours of games per week, as compared to 0% of the females. The converse is also true, only two of the males play less than 3 hours per week (15%, n=13) but six of the eight females play less than 3 hours per week (75%, n=8.)

The survey also collected information about the type of games which the students play. The students were given a line in the survey where they could write in their gaming preferences. They responded by listing games that range from animated games to role playing to violent and graphic videogames.

The twenty-one students who played videogames named 15 different games which they played regularly. The students mention that some of them like to play animated games like Pokeman and MarioKart, but the majority of gamers play role-playing video games. Of the most popular role-playing videogames, three students played Minecraft, three played Call of Duty, and two played Borderlands. Two-thirds of the students role-playing war games were males, again confirming the researcher's anecdotal observation that the players of war games are primarily male. The relation of the types of videogames played by the students and their comments about this virtual world activity will be discussed further in the conclusions chapter of this study.

Attitudes and Perceptions of the Virtual World

The rest of the survey consisted of 31 Likert scale questions designed to capture the opinions of the students on a variety of topics related to the virtual world learning activity. The topics which were explored in the survey included the students' thoughts and impressions about learning German in the sim, how they felt about the interaction with others and the level of comfort which they experienced while participating in the activity. The questions are ordered in a way similar to that used in the qualitative interview section of this chapter, but there are some differences due to the nature of the data gained by this method. The results were coded using numeric values which were entered into an Excel spreadsheet for statistical analysis.

Fun and Enjoyable

When asked if they enjoyed the role-playing lessons in the virtual world village of Plauderstein, the students responded positively with 85.7% (n= 42) of the responses being

in the “agree” or “strongly agree” category. There were six neutral responses (14%) of those who were “not sure” if they enjoyed the experience, but no negative responses to this question. The students also thought the role playing lesson was fun with 76% choosing to either strongly agree or agree that being in the sim was fun. Nine students were neutral (21%) on this topic, and one student disagreed strongly with the statement (.02%) This means that more than three quarters of the students enjoyed this activity, which is a strong positive result.

The survey asked the students if they felt that the role playing activity was a waste of time. Thirty five students either disagreed or strongly disagreed with this statement (83%) and seven students were neutral (17%). This indicates that a clear majority of the students didn’t feel like the activity was a waste of time. The overall theme of the sim activity being “fun” is evident in these responses, as it was in the interviews also.

Students commented on the statement that the sim would be better if it was more like a videogame that they student could just play by themselves. On this topic, nineteen students disagreed (45%), while ten agreed (24%), and thirteen (31%) were neutral. A similar question addressed the issue of “fun” as it relates to the virtual world activity by asking if the videogames the student plays are a lot more fun than this activity. What was surprising in the results for this question was that seven students (17%) actually disagreed with this statement and chose either “strongly disagree” or “disagree” with this statement. Sixteen students agreed that the videogames which they play were more fun, which was the expected answer, and the majority were neutral. This result surprised the researcher because it could be expected that games played at home would be more fun for students than doing a German language exercise at school, regardless of the format.

Being a Visitor to Virtual Plauderstein

As previously mentioned in the literature review, researchers such as DeJong, Derrington and Homewood (2008), and Schroeder (2002) discuss ways in which the experience of participating in virtual world activities seems like doing similar activities in "real life." Several questions on the survey attempted to gain the students' perspective on this topic. The phrasing of the survey statement was strongly positive, but in spite of that nine students expressed agreement with the idea that after a while they forgot they were avatars and they felt like they were "hanging out in a real German town." Sixteen of the students "weren't sure" if they felt that way. Thirteen disagreed and four strongly disagreed with the statement, which was the expected response. It is remarkable, however, that sixteen students (59.5%) could either agree with this statement or had a neutral response. These students felt that the simulation was realistic and similar to a real German town.

The students were asked to comment on the statement, "With the German signs, flags, and buildings all around me, I felt like I was in Germany." Again, this statement has a strong positive bias built in which leads to the expectation that the students will strongly disagree. But counter to expectation, only two students "strongly disagreed." Five more students generally disagreed. Nineteen students weren't sure if they felt like they were in Germany. But twelve students *did* feel like they were in German, and four students "strongly agreed" that with all the signs, flags, and buildings surrounding them as they were in the virtual world, the felt like they were actually in Germany.

The survey also sought to determine if the students felt that Plauderstein would have to be developed more in order for them to feel like it was really a German town. Nineteen students either agreed or strongly agreed with statement, and eighteen weren't sure if it needed to be developed more or not. A strong majority (88%) of the students feel that the sim could be developed more or improved in order to enhance their sense of realism with the environment and to make them feel "it was really a German town." This result was expected, and it suggests that the simulation itself could be further improved in order to provide a heightened sense of realism.

It should be noted, however, that some students did feel that the sim was already realistic enough for them to feel that didn't need to be improved for them to feel "it was really a German town." There were five students (12%) who felt this way, with one of those five expressing saying that he or she "strongly disagreed" that the simulated town needed further improvement. That anyone would feel that the sim was OK in its current form was something of a surprise to the researcher and would probably be gratifying to those who built the village in OpenSim and who helped create the signs and other articles in German to give it a feel of a German village.

Learning Process

On the topic of what the students felt that they learned in the virtual world, the students evaluated a statement that role-playing activities in the virtual world helped them practice their German skills. The students responded positively on this topic, with thirty-three students agreeing that the activity helped them practice their German skills (78.5%).

There was only one student who disagreed with this idea, and eight students were not sure if it helped them or not.

A question on a related topic attempted to see if the students felt that practicing their language skills in the virtual world would translate into real-world fluency. Nineteen of the students (45%) felt that the activity would help them talk to people in Germany. Twenty-one of them were not sure, and two students disagreed. This question was included because the German teacher often takes her students to Germany in the summer, and the researchers wanted to see if the students thought the learning activity in the sim would help them prepare for this kind of trip. Exactly half of the students responded "not sure" to this question (twenty one students) which might be a reflection of the fact that only a few of them have traveled to Germany and they don't know how the virtual world activity compares to real world situations.

Another general learning statement which the students commented on was if the students learned more when they took the role of the "Director" in the sim activity. This survey statement referred to the way the role-playing activities were scripted with a person playing a role of the German "Director" in each scripted scenario, (see Appendix D: "'Role Playing Scripts".) The Director's role would have been the station master at the railway station, the hotel clerk at the hotel, the manager at the Camping-Platz, and the waiter or waitress at the restaurant. Each of these director roles was more developed and contained more advanced vocabulary than the other participant roles. Most of the students didn't think that these roles helped them learn more than just playing as a participant. Fifteen students disagreed with this proposition, and 18 were not sure if it was true. Only 9

students (21.4%) felt that they learned more as a director than as a mere participant in the role-playing activity.

The students answered several questions about how easy or difficult they thought it was to interact with others in the simulation. Thirty-two students (76%) agreed that it was easy to interact with others as an avatar, slightly less felt it was easy to move around as an avatar with 27 students answering that they agreed or strongly agreed with that statement. It is notable that some students (8 students, 19%) did experience some problems "moving around" as avatars, and this might suggest that more time should be spent on orientation for the students in order to show them how to navigate to different places in the virtual world before they are simply "let loose" to manage on their own in the sim.

A related question on the topic of learning in the virtual world was if they learned new vocabulary words by interacting with others in the virtual world village. The purpose of this question was to explore the topic of social learning through the interaction with others which was previously discussed as a key element in the learning theory developed by Vygotsky. This statement and several related questions on this topic was designed to find out if the students felt that they learned more German language elements by being in a social context with other students while participating in this activity. There is a linkage in this statement between "I learned some new vocabulary worlds" and the phrase "by interacting with others." The students responded affirmatively: twenty-three students either agreed (17) or strongly agreed (6) with this statement, with eleven students responding neutrally, and seven students responding negatively. On this question, then, the majority of the students (52.4%) felt that they had learned new vocabulary through social

interaction, and only (16.6%) did not feel that they learned new words through interacting with others.

In order to plan additional research on this topic, the researcher asked the students in the German classes two questions to find out how they would feel about participating in a virtual world language learning activity with German students from Germany. The students responded favorably to this idea. Twenty-five students (59.5%) thought this was a good idea, with six students "strongly agreeing" that it would be a better activity with real Germans participating. Eleven students weren't sure if this was a good idea, and three disagreed and three strongly disagreed that this would be a good idea. For comparison, those with a negative opinion about the idea of including real Germans speaking in their own language was 14%, compared to the 59% who liked the idea.

Challenges

There were several questions on the survey which attempted to find out what aspects of the sim activity the students found challenging. Questions about talking out-loud and feeling stress or anxiety and questions about technical problems such as voice chat are included in this category.

The literature review for this study mentioned the topic of "language anxiety." This is when students feel anxious or uncomfortable speaking a new language out-loud. (Note, as mentioned previously, the expression "speaking out-loud" refers specifically to the act of reciting vocabulary or sentences verbally in the context of the foreign language classroom.) The survey explored student's level of anxiety speaking German in the

traditional classroom setting in order to compare this to how the students felt about speaking in the virtual world as avatars.

The students predominantly responded that they felt nervous speaking German out-loud in the regular German language classroom. Twenty-five either agreed with or strongly agreed with the statement "I feel nervous speaking German out-loud in the regular classroom" (59.5%, n=42.) Seven of the students were not sure if this was true, and twelve disagreed with the statement. This coincides with comments made by the German teacher while planning for the study. She felt that there were a number of students who felt anxious speaking German out-loud in class and she hoped that they would feel more comfortable and confident doing so in a virtual world setting.

The survey sought to explore this from the opposite point of view with a statement saying that the student felt more confident about speaking out loud now that they had done the virtual world activity. The students answered this question either neutrally of affirmatively – twenty of them indicated that they were "not sure" if they were more confident, nineteen of them did feel they were more confident, and only three students mildly disagreed with that statement.

Several statements on the survey sought to further explore how the students felt about talking out-loud in the sim and other issues related to the new technology which were challenging. Twenty-five of the students (60%) disagreed or strongly disagreed that they got stressed out and nervous speaking German out-loud in the sim. But six students (14%) agreed that they "got kind of stressed out" being a visitor to the virtual world and speaking German out-loud, and one student strongly agreed that it was stressful to do so.

The students were also asked if they felt self-conscious speaking German out loud in the virtual world, Ten students disagreed and indicated that they did not feel less self-conscious speaking German out-loud, eleven students were neutral, but the largest percentage (50%) of the students felt less self-conscious speaking German out-loud in the virtual world. These two results tends to confirm their teacher's prediction that students would feel more comfortable and less anxious speaking out-loud in a virtual world than they would in a regular classroom.

The researcher explored the topic of comfort vs. anxiety with several survey statements. One survey item questioned if appearing as an avatar in the virtual world made some students feel uncomfortable. This question attempted to draw a distinction between being "comfortable talking out-loud" and simply feeling "comfortable interacting with others as an avatar." This statement drew the largest positive response of the questions examined so far. Thirty-nine of the students "felt comfortable …as an avatar" out of the forty-two students who took the survey (93%, n=2.) One student didn't feel comfortable as an avatar, and two weren't sure, but the overwhelming majority of students felt comfortable appearing as avatars and interacting with the other students in the virtual world setting.

The survey also dealt with the topic of the challenges of the use of the audio features of this new technology. "Voice Chat" is the term used to designate talking with others in a virtual world through the use of a microphone and headset. Different computers have different setups for communication by voice and speakers. Some computers have a built-in microphone and speakers (this is true of most lap-tops.) Others require additional components such as remote speakers and microphones or a headset with

an integral microphone and headphones. Because there is not a standardized sound and voice setup for all computers, there can be compatibility problems which make the use of "voice chat" difficult. Consistently reliable "voice chat" capability in virtual worlds is therefore an ongoing problem, and one question on this survey attempted to see if the students felt that it was a problem. Thirty-one students (74%) either agreed or strongly agreed that it was easy to talk with others using the microphone and headset supplied in the computer lab. This was a surprising result and not anticipated by the researcher who in the past attended several virtual world conferences and participated in collaborative virtual world activities with other doctoral students, and in each of those cases the "voice chat" problems were a serious obstacle to communication.

"Voice Chat" is in contrast to what is called "typed chat" which is also used in video games and virtual worlds. Typed chat appears as a window with text on the side of the users' screen. It allows participants in a virtual world to communicate in another way than through voice and is therefore useful in some ways. But if only this type of activity is available, i.e., "typing but not talking," that would be a major hindrance to successfully participating in virtual world role-playing activities which are intended to help students improve their spoken language skills. It was a positive result of this study that the voice chat hardware and software functioned successfully, and this result was reflected in the students' responses to questions on this topic

An additional and more general question about the students' perception of the technological aspects of the sim activity was if the students thought the technology worked well and was trouble-free. This was a strongly worded statement, since it asked the students to judge if the technology was "trouble free." That raises the bar for their

responses, since they would have to believe the technology worked perfectly in order to meet the standard of "trouble free." On this topic, the students generally were positive, with 19 students agreeing or strongly agreeing with that statement. Thirteen students were neutral on this statement, and ten expressed disagreement. This translates into 45% thinking the technology worked very well, and 24% believing that it had at least some technical problems which still need to be resolved.

Relation to Guiding Theory: Vygotsky and Piaget

The researcher asked several questions which relate to the guiding theory of Vygotsky. The students were asked if other classmates helped them figure out words and phrases at the hotel, train station, campground, and restaurant. This topic received strong approval from the students. Thirty-five of them (83.3%) agreed that they had been helped by other students to learn new words and phrases at the various simulated locations in Plauderstein. Only three (.07%) didn't think this was true.

The students were asked if they got tips on how to do things in the sim from their classmates. This query addresses both the learning of language skills and learning virtual world technology skills. The phrase "how to do things" might be construed either way, as in "how to do the lesson" or "how to move around, find places, get the voice functions to work, change my avatar" etc. The survey required the students to agree that they didn't get just "some help" but "lots of tips on how to do things." As the researcher expected, the response was not as strongly positive for this question. Twenty students agreed that they received lots of tips on how to do things (47.6%) and eight students (19%) did not agree.

Another element of Vygotsky's learning theory is his concept of "scaffolding" whereby a mentor helps a student learn a concept by providing support to the learner in the initial phases of a learning activity. According to Vygotsky, this support can later be removed once the student gains mastery of the concept, but often the teacher or instructor is an important part of the early training. This idea was explored on the survey by asking if the students' teacher took an active role in helping them learn some new German skills during this activity. The students responded positively to this statement, with thirty three of them (76%) agreeing that their teacher took an active role in helping them to learn some new German skills in the virtual world. It might be mentioned that Mrs. Simpson was present as an avatar for each session in the virtual world, and that she would visit the students and listen in to their conversation and offer tips or corrections from time to time. She was able to both observe and participate in the learning activity with each group or team of students at some point in the study. There were five students (12%) who responded negatively to this statement and didn't think she helped them learn new German skills.

As noted earlier in this chapter, when the survey was administered both the researcher and the German teacher stressed the anonymity of the student responses, and the students understood that their answers were private and that no names were being collected on the survey instrument. The students understood that the survey didn't affect their class grade and that they could express their opinions freely. This means that it is a fair and unbiased result in favor of the teacher's contribution to the project and of her contribution to the students learning, when 76% of her students respond that she helped them learn new German skills during the course of this activity.

In the literature review the learning theory of Vygotsky was contrasted with the learning theory of Piaget. The survey included statements which sought to gauge students' perceptions about whether they mostly learned in a group (as in Vygotsky's theory) or whether they mostly learned on their own (as posited by Piaget). In responses on the survey, the majority of the students felt that they had figured out most of the words and phrases for the activity on their own (59.5%). Only 16.6% of the students disagreed with that statement. This conflicts to some extent with the students' earlier assertion that they received help from other students. But examining the wording of the two statements, it would be possible for the students to "receive some help" from other students in the sim, and also feel that they themselves had figured out most of the material on their own. This is not a problem for Piaget's theory. His theory of learning posits that the student as an individual is primarily responsible for their own progress in learning, but he also believes that the social context plays a supportive, but not primary role in building knowledge (Piaget, 1923).

One statement on the survey asked the students if having other people around in the sim makes learning more difficult for the student learners. This probed Piaget's theory from the negative side as well, seeking to find out if the students were actually hampered in their learning by the interaction with others. Twenty-nine of the students, a clear majority (69%) disagreed that other students in the sim made things confusing and made learning harder. Ten students were not sure if that was true, and only four students agreed that their classmates hindered their learning in the Plauderstein sim. This is a fairly small percentage, slightly less than 10%, but it is worth noting.

Learning in the Future

The students evaluated a statement asking the students if they believe this is the way students will practice German language skills in the future. The researcher anticipated that the students would feel that this was true, and their responses were positive. Only one student disagreed with this statement. Eleven students were not sure if this was true, but thirty students (71.4%) believed that this would be the way that students will practice language skills in the future. Note, however, that the key word in this statement is *practice* language skills. The students are not expressing the opinion that all German language learning will take place in a virtual world, only that others will find it helpful to practice language skills in an environment like the Plauderstein virtual world.

Quantitative Survey Summary

The researcher designed the survey instrument to capture the attitudes and perceptions of the students to the role-playing activity in the virtual world. The students understood that their response were not part of their course grade for the spring semester. This allowed the students to express both positive and negative opinions freely and voice their opinions about the aesthetic and practical aspects of doing the learning activity in the simulated German town. They responded positively to nearly all of the questions on the survey which asked them to judge the value of this learning activity. The researcher saw this positive pattern develop from the beginning of the coding process of the survey. At almost every opportunity on the survey the students expressed positive attitudes and perceptions about the virtual world activity.

Data Triangulation

Data triangulation is a term given to the process of comparing or contrasting the results of two (or more) methods of data collection. This study consisted of two methods of investigation which allowed the researcher to compare the findings from the qualitative interviews (Stage I) and survey (Stage II.) The findings of both methods used in this study were generally in agreement, with one method at times providing more detailed results than the other based on the sort of information that could be gained by either personal interviews, or the use of a survey which provided Likert scale data. The main areas of agreement reflect to some degree the main themes of the study seen in the previous results reported under the headings Stage I and Stage II.

Both methods of data collection focused on the students' experience of being in Plauderstein as a tourist or visitor to Germany for the role-playing activities. In the interviews the students spoke of how being in Plauderstein was like "just going through a day in Germany" (#7M.) On the survey, roughly 60% of the students agreed with a statement on this topic. This suggests that the students generally felt like they were visiting a town in Germany while they were participating in the sim. Further affirmation of this comes from both comments made in the interviews about "going on a trip like that" (12F) and from survey responses which affirmed that most of the students felt that with the flags and buildings and signs of the sim being in German, they felt like they were visitors or tourists in German village while they were in the virtual world.

Once they arrived in Plauderstein, the students found that they needed to learn to move around and interact with others in the sim. In the survey the students strongly agreed

that it was easy to figure out how to navigate in the sim and get to where they needed to be for the role-playing exercises. This could be also seen in the interviews, where the students' responses changed from the first interviews to the later interviews, as they grew more accustomed to using their avatar and getting from one place to another. Many of the students figured out how to use the built in functions of the sim to teleport their friends to where their group was meeting. This was reflected in the survey answers to questions on the topic of the technical aspects of moving around and meeting with other students. The students' agreement with their ease of navigating might be a reflection that by the time the survey was administered, they had 4 full days of activity in the virtual world and were at ease with the process of moving and finding the correct location for the role playing activity, and with meeting up with friends in the world.

The students also expressed a common opinion about what it was like talking in German in the sim. In the interviews they made statements like that of #10M, "I learned that whenever we go to Germany, I would have to think a lot quicker on words that I would want to say." The survey explored this topic with questions about if the activity would help the students if they actually go to visit Germany and try to talk to people there. The students affirmed that they felt that this activity would help them, with the majority of students either agreeing or neutral on this statement and very few students disagreeing. The general consensus in comparing both methods is that the students felt that being in Plauderstein showed them that they would have to speak more quickly in German and they would have to improve their vocabulary. They felt the sim was a useful way of improving these two language learning skills.

In comparing the results for the two methods the researcher found that the survey and interview results also reinforced key findings on the topic of the learning process. Both methods provided clear evidence that the students felt comfortable speaking and interacting as avatars. As student (5F) put it in the interview, "I feel more comfortable, because not everyone is staring at me, they're looking at my avatar." This was also evident in the survey when it was posed as a negative question about being stressed out and nervous. Only seven students agreed with that statement, while the majority (83%) disagreed. This response, as well as other results, shows that the students felt less nervous speaking German in the virtual world and more comfortable interacting with their peers in that environment.

The ease which the students felt with being in the sim also contributed to an environment which reflects the social learning theory of Vygotsky. The students note that they feel that "It is more fun to be with your friends and classmates kind of teaching you instead of the teacher" (#4F). The students found that they were able to interact and learn from each other and this is seen in the survey when the students agreed that their classmates often helped them figure out words and phrases at the hotel, train station, campground and restaurant. On this survey topic there was a positive response rate of 83%. This shows a strong agreement between the statements from the students' interviewed and the response of the entire class on the survey. The students clearly feel that their peers are an aid to learning German in the virtual world.

The fact that the students feel that they learn a lot from their classmates in the virtual world, might bring into question the teacher's role in the learning activity. The role of the teacher in the virtual world did not come across clearly in the interviews, but in the

survey the students responded to the statement that their teacher took an active role in helping them learn some new German skills during the activity with a strong affirmation, (76% agreed). This was not as clearly seen in the interview results as it was seen in the survey on this question and several related questions.

Engaging and Fun

An area of strong agreement between the two data collection methods was the students' responses about the sim being engaging and fun. The students use the word "fun" to describe how they felt about the sim activity 51 times in the interviews. "It's more fun, more interesting, than doing lessons in the regular classroom" (#3F,) is a typical response from a student on this topic. This can be compared to the group answers on survey questions about fun; they were overwhelmingly positive. As mentioned previously, there was broad consensus from the students on both measures which showed that they enjoyed this learning activity and hoped to do it again in the future.

In the Game

One other area of comparison between the methods used in this study was students' responses to the Plauderstein activity as a game. The survey provided demographic information about the student subjects, showing that a much higher percentage of the males in the group were gamers, and that the male gamers played videogames for many more hours per week per person than the female gamers did. This information would not have been captured by the qualitative interview process. But in contrast to that, there were many comments in the qualitative interviews such as "I haven't played that many virtual world games, but this one is pretty good," (#7M.) This sort of

personal reflection which has been termed “thick description” by some qualitative researchers, does bring an added element of descriptive power to the student’s comments on the sim activity.

Summary

In looking at the results of Stage I: Qualitative Interviews, and Stage II: Survey Results individually, each of them has interesting information to provide about the students experiences and opinions about the virtual world learning activity. In triangulating the results of these two methods there are notable areas of agreement, but no clear areas of disagreement. There are shades or nuances of meaning which can be gleaned from comparing the two methods, but the general consensus is the same: doing German exercises in a virtual world is a fun and useful activity for high school German students, and one which they believe will be popular in the future.

CHAPTER FIVE

CONCLUSION

Introduction

This chapter provides a discussion of the study findings, and implications of the study for future research in the field of virtual world studies. The conclusion includes some suggestions for possible practical application of this learning technology in high school German classrooms and notes ongoing use of the technology from this study at a local high school.

Discussion

The study employed two methodologies; qualitative interviews and survey. The findings show how students reported in the interviews and in their survey answers in similar ways. These findings will be considered as they relate to the two research questions which form the basis of this study which are noted above and they relate to the main themes of the study discussed in the chapter which details the study results.

Being in the Virtual World as a Visitor

Several conclusions can be drawn on the question of what the experience of interacting in a virtual world is like for the students. Both the interviews and the survey results showed that the students found that being in Plauderstein and speaking German there was different from what they had experienced in the regular classroom. The overarching theme which the students mentioned was that being in Plauderstein to learn German was fun. This was expressed in their comments in the interviews and the survey,

and it impacted their opinions of what they gained from the experience of being there. The students generally spoke of this in positive terms. One of the clearest being the statement from student #7M, "It makes you want to go back to it instead of going back to the boring classroom."

The study shows how the students felt that being in the virtual world was similar to what it would be like visiting a small town in Germany in real life. They talked about having to find their way in the virtual village to the location where their group was meeting to do the role-playing activity. In order to do this, the students needed to use the maps, building signs, and street signs built in to the sim. It also included communicating with their classmates and learning how to teleport to a common location by using some of the other tools available in the virtual world system.

Videogame Comparisons

The students thought that in many ways this new form of learning was like some of the videogames that they play, and some of them began referring to the activity as "the game." The researcher found that several of the comments of the students in the interview had an almost "Freudian Slip" nature about them: the students would talk about being in the game and playing the game, et cetera, in a way that showed they actually thought of the activity as a game, not a learning activity. This was a surprise to the researcher who looked on the learning activity as a form of group language participation, but not as a "game." The students clearly experienced the sim differently and often spoke about it as a game.

It was also an unexpected finding that the students began modifying the interface and discovering aspects of the virtual world that the researcher did not know existed. This happened on the first day of orientation when some of the students found new clothing and costumes on some lower levels of a castle at the Arcadia orientation island. The students were supposed to be learning how to move their avatar, use voice controls, and other activities. But some of them flew down and around the castle and found other avatar clothing resources, and began putting on new outfits for their avatar. They also notified their friends of these resources, and soon many of the student avatars wore different clothing than before.

One other unexpected finding, which should probably not have surprised the researcher, was that the students (especially those that were gamers) found out how to access some of the controls in ways that reflected their gaming experience. This included being able to change aspects of the interface to adapt the keyboard from the standard use of the keys to a making it function like a gaming keyboard, with the WASD keys being enabled for moving an avatar around, and the spacebar becoming a toggling device to turn on and off the microphone. The students also were very quick to find the controls for modifying their avatars, and they almost immediately set about changing their avatars appearance, and often had to be verbally reprimanded by the teacher to quit "fiddling" with their avatar when they were supposed to be doing the class exercises. This included both the male and female students equally. The study was not set up to measure the amount of time devoted to this ancillary activity, but it could be another aspect of a future study.

The students mentioned how they thought the sim compared to other games or sims in both positive and negative terms. The study found that the students had a number of positive things to say about Plauderstein "as a game" in terms of its functionality, graphics, and ability to keep them engaged as participants. On the survey the students responded that the simulation compared favorably with other games that they played, and in the interviews they spoke about how much they enjoyed the activity. The researcher was somewhat surprised to not hear more negative responses from "the gamers" who were well represented in both the survey and in the interviews. In spite of being well acquainted with much more sophisticated virtual world activities, the gaming and sims enthusiasts spoke approvingly of the interface and capabilities of the virtual world environment.

The findings of the study concerning demographics of the gaming population among the student subjects were even more skewed to the male gender than the researcher expected. The male population of students who responded to the survey play videogames at a notably higher level than the female population. This was seen in the both the demographic information gained in the survey, and reinforced by the comments of the males on the interviews. Perhaps the most surprising aspect of the information gained was that not only were there many more males playing videogames than females, but the males were playing games weekly at a rate that far exceeded the number of hours per week the female gamers were playing them. Fully exploring the relationship between the amount of time spent playing videogames and how this impacts learning in a virtual world was beyond the scope of this study, but it might also be a fruitful topic for future research.

Learning Process

Comparison to regular classroom.

The study showed that learning German in a simulated environment differed in several ways from the students' typical classroom experience. The Plauderstein activity required more group participation than most of their classroom activities which tend to focus on interaction between the teacher and one or two students. Several of the student's interviewed noted that there are generally just a small group of students who actively participate with the teacher in their usual class. In the virtual world activity, the students could not as easily opt-out of the activity, because their classmates were waiting on them to complete their part of the script. The students who usually refrain from speaking in class *had* to participate. This made the activity a more interactive German language exercise, and it got more members of the class actively talking and interacting with their peers.

The level of interaction for the students led to another finding of the study, which was how the virtual world became in a sense a social media for the students. Several of the students commented on this in the interviews, saying that in general they weren't supposed to be socially active with other students while in German class, but the point of the role-playing exercise was for the students to be with their friends and do an activity with their friends. Some of them mentioned that they had gotten to know other students better by doing this activity, and that it was what made the activity enjoyable and enhanced their ability to learn German. They noticed that not only were they allowed to

be with their friends, but they were *supposed* to be with their friends both talking and having fun.

Feeling Comfortable "In-world"

Another finding of the study was that the students were comfortable in the world. This was seen in nearly unanimous responses to questions on this topic in the survey, and in comments made in the interviews. Prior to the study, the researcher was concerned that perhaps some of the students would feel uncomfortable appearing as avatars, or that they would think that it was strange or even frightening. There is discussion in the literature about whether or not students find interacting as avatars "creepy." This is based on a theoretical paper on the interaction with robots that posits an "uncanny valley" in human reaction to representations of humans that are either mechanical or digitally animated (Mori, 1970). The concept of the "uncanny valley" is that at some point representations of humans become so realistic they are frightening or disturbing. The researcher wanted to see if the students felt this way about interacting as avatars in a classroom, since that could have implications for the future use of the technology if students were in some way psychologically damaged by the virtual world activity. This study found no evidence of that problem.

The students clearly expressed that they not only were they comfortable, but in some ways they felt more comfortable as avatars than as regular students. One student (#5F) specifically mentioned that she feels it is "nerve-wracking" to have everyone staring at her in class when she is trying to speak German, but she did not feel nervous having people stare at her avatar while she was trying to talk. The German teacher found this

interesting also, and it confirmed her opinion that there are a number of students in each German section (many of them males who play videogames) who are too shy to speak out-loud in class. It was clear from both the interviews and the survey that this group did not feel nervous or uncomfortable interacting with others in the virtual world, and that for this demographic group the virtual world might be a good tool to "get them talking."

The researcher found that the students also seemed comfortable making negative comments about their typical German classroom experience as compared with the activity in Plauderstein. Several of the students spoke candidly about being bored at times in the regular classroom and said that they sometimes had trouble staying awake. The researcher felt that these unguarded statements were truthful and not meant as overt criticism of their teacher, but rather as a reflection of how difficult it is to make language learning activities in a regular classroom fun and engaging for high school students. By contrast the students did not mention being bored with the virtual world activity.

Meeting Germans in "Real-time"

Another finding of the study that relates to additional application of the technology was whether or not student would want to meet real German speakers in "real-time" in the simulated village of Plauderstein. The researcher was interested to know what the student subjects felt about meeting real German students in Plauderstein would be like, since this is one possible application of this technology in the future. The students discussed this in the interviews and were generally open to the idea of meeting with other German students of their own age in the virtual world to participate in language learning activities together.

The exchange student from Berlin (#11F) who was one of the interview subjects made comments on this topic which the researcher found interesting. She said that in her opinion it would not be enough to simply meet real "German speakers" but that it would be much more effective if the speakers were real German high school students of the same age as the American students who were studying German. She stated this opinion in the context of other comments she made such as ""I think people are more comfortable with those who are their own age, who could be friends." This correlates to other findings of the study which emphasize the social aspects of the peer group involved in the German simulation and how this demographic group is drawn to group interaction "with friends" as they often note in the interviews in this and in other contexts.

Challenges

Speaking German in Virtual Plauderstein

Another finding of the study was that students needed to think quickly and speak quickly in order to carry on a conversation, which also made them feel like they were actually in a town in Germany. The study found that there were two key aspects to speaking German necessary in the sim activities: speed and vocabulary. The students noted that in the regular classroom they had enough time to think of an answer or look it up in the book before having to speak out loud in German. But in the virtual world, it was a fast paced conversation and they had to, as it were, "think on their feet." They had to very quickly come up with a correct German word, or substitute an English word in the sentence. Several of the students mentioned that this would be the tactic they would use if they found themselves in a similar situation while visiting Germany. They said that they

would quickly say as much as they could in German, and then put in some English words or expressions and hope that their listeners understood.

This finding about speed and vocabulary was something of a revelation to some of the student subjects, who made comments about how they had learned that speaking German in a real setting was going to be much faster paced and would require them to have more German words and phrases which they could bring out from their memory, in order to carry on a conversation. The students also realized that the vocabulary for speaking German in a real setting was going to differ from the vocabulary they needed to complete lessons correctly in class in some ways. The researcher felt that this was one of the key findings of the study, namely, that doing virtual world role-playing activities would be good practice for anyone thinking of actually travelling to a foreign country and trying to successfully communicate with native speakers.

Improvement of Technology

The study shows that the students did have some negative comments about technical glitches in the simulation, though these tended to be less numerous as the activity continued. The negative comments were primarily focused on the use of voice chat features of the virtual world technology. This would be one part of the virtual world technology which could be improved. This finding relates to the ease of use of the technology in general. In gaming and computer parlance there is an expression "plug and play," which refers to the ease of use of an element of computer hardware or software which someone might want to try out. It means that even an inexperienced user can simply "plug it in" and begin to play. What the researcher found from this virtual world study is

that any aspect of the virtual world that is not "plug and play" is a problem. Though the minor voice glitches, object scripting problems, and log-in issues did not prevent the students from participating in the study, the issues and problems that were present showed that the technology still needs to be improved. The researcher believes that these issues will most likely be resolved as computer technology improves and becomes less expensive over time.

Future Affordances

The study found that most of the students thought that this was one way in which German would be studied in the future. Their responses to questions on this topic were consistent both in the interviews and on the survey, and therefore it might be assumed that they were not merely saying this in the interviews to please the researcher/interviewer. They appeared to honestly believe that this technology will become part of language instruction classrooms in the future and the students as a group expressed pleasure that they were some of the first students in America to be using this new technology to learn German.

The interviews and survey yielded additional insights into the virtual world activity from the students' perspective. Although the students were prompted with a scripted series of questions in the interviews, they freely supplied their own opinions and reflections about the role-playing activity, the usefulness of the technology, the value of the activity for learning German, and possible concerns or problem areas that could be corrected or improved. The student comments to the researcher did not appear to be guarded or

censored out of fear that their grade might be lowered if they said something negative about the activity either in the virtual world or in the classroom.

Guiding Theory

The pedagogical theories of Vygotsky and Piaget were chosen as the guiding theories of this study because the researcher believed that they related to aspects of learning that might be present in a virtual world learning activity with K-12 students. Vygotsky and Piaget approach the learning process from slightly differing perspectives, and the findings of this study support the theories of both men to some degree.

Vygotsky

In the literature review the researcher noted that Vygotsky primarily saw learning as an aspect of human interaction and that Piaget primarily saw learning as an aspect of the individual's approach to the world. Both men have been classified as "constructivist" in outlook, and therefore do not see knowledge as "innate" but rather something which comes about through interaction with the world or with others. This study found evidence to support both perspectives on learning and in particular foreign language acquisition. However, the researcher feels that the views of Vygotsky on learning are the most applicable to what was found in the study.

Vygotsky discussed learning as being a continuum in what he termed the "Zone of Proximal Development" (Vygotsky, 1967). He felt that learners had differing capabilities, and through interaction with the world and with others they made progress in acquiring higher levels of cognitive achievement. Through interaction with others an individual acquires knowledge and new skills. The findings of this study found that the students

worked together to learn to master the lessons in the virtual world. They prompted each other, encouraged each other, supplied missing words and phrases to group members, and generally interacted to bring along members of the group who knew fewer vocabulary words or idioms in German. One student (#3F) who was quoted in the previous chapter said "in the classroom, Frau's the teacher, but in this, we're the teachers." This was an apt description of the way in which the students reflected the role of social interaction in the learning process for the virtual world activity, which would give credence to Vygotsky's view that it is primarily through interaction with others that students learn new skills.

One other element of Vygotsky's theory which the findings of the study supported was the concept of "scaffolding" as discussed by Vygotsky in his treatment of what he calls the Zone of Proximal Development, or ZPD. What this study found was that the students who participated in Plauderstein mention both "adult guidance" and "collaboration with more capable peers" as important elements to how they learned new German words and phrases in the virtual world. They specifically mention the role of their friends and classmates, as well as the role of their teacher as being important to the acquisition of new German language skills in the sim activity.

Vygotsky also spoke about building higher order thinking in a setting, which begins, as imaginary and play-like were reflected in the students interview and survey responses comparing Plauderstein to an educative game. Vygotsky placed great emphasis on the emotional elements of play and thought it was the joy of these activities that made them so important as tools which children use to learn, and this can be contrasted with Piaget who eventually settled on a description of the role of play which is "a cold cognitive model that leaves little room for playful motives and interests" (Lytle, 2003, p.

105). This study found that Vygotsky's theory of play was more thoroughly supported by the results of the students' activities in Plauderstein. One of the key elements for the students in wishing to participate in the learning activity was "joy" or "fun." As has been mentioned several times, the students wanted to participate in the learning activity because it was fun and enjoyable, and the study found that having fun in the virtual world was one of their key experiences in Plauderstein.

Piaget

Although the researcher believes that the learning theory of Vygotsky describes the virtual world learning experience better, the learning theory of Piaget also could be supported by findings from the study and in particular from some of the students' comments during the interview process. A number of researchers have likened Piaget's view of the child or adolescent to a "little scientist" exploring the world around him as he or she learns about the world (Broughton, 1977; Carlson, 2003; Kuhn, 1997). This was evident in statements which the students made about how they experimented with learning new elements of the German language, as in this quote by student #1M. "It was really fun. I learned new words, like "camping-fire" I had to basically put that together because I learned fire was "feire" and I knew camping. . ."

One other finding which favored the Piagetian theory that individual learners are primarily responsible for acquiring knowledge by themselves was seen in the response to the survey question which asked the students if they figured out most of the words and phrases which they needed to do the activity on their own. As was noted in the survey results, 25 of the 42 students in the survey (59%) agreed with that statement, and only 7

disagreed (16%). This supports Piaget's contention that there must be an individual component which motivates learners to acquire new skills or knowledge in order for them to be successful. But it should be noted that 35 students (83%) noted that other students had helped learn new words or phrases. The researcher believes that the students responded in a somewhat contradictory manner, believing both that other students helped them learn, and that they learned elements of the language on their own. One explanation for this might be that the students felt like both processes were at work, for some elements their friends helped them, and for others they figured it out on their own.

Activity Theory

Building on the work of Soviet psychologists, including Vygotsky, activity theory attempts to integrate the perspective of the individual learner (in ways similar to Neo-Piagetian theory), the context of the interaction, the tools used or produced in the interaction, and the social elements of that interaction. Activity theory has advantages as a theoretical system to apply to virtual world technology which could be explored further. One of the key advantages in using activity theory as a framework for understanding virtual world learning is the integration of current learning theory in the model. Vygotsky and Piaget were seminal theorists in this line of inquiry, but as noted previously, the majority of their work was completed prior to more modern research methods in the social sciences were adopted.

In looking at the findings of this study through the lens of activity theory, the researcher believes that it could provide a useful framework for examining the results of future studies in virtual worlds. Jonassen (1999) noted that in order to understand a

learning activity, it was first necessary to fully understand the context in which that activity occurs. In this study, the interviews and survey provide clear evidence for how the participants in the role-playing activities felt about the experience of being in Plauderstein, interacting with their friends, interacting with their German instructor, and interacting with the technology of the world itself. These elements have already been summarized in this study, but they could also have been examined using only activity theory as the guide for discussion of the results.

The researcher of this study believes that the data from this study could be examined in depth by using activity theory as a tool for the analysis of each of the elements of the study: the world, the participants, the technology, and the artifacts produced by those who interact in the world (including the teacher.) It is beyond the scope of this study to analyze each element of the virtual world activity in light of activity theory, but this could be a fruitful guiding theory to apply to future studies or further analysis of the data produced by this study. The researcher does not think that the conclusions drawn from this process would differ from those produced in this dissertation, but activity theory could provide a more up-to-date framework for future research writing in this field.

Summary of Theorists

The researcher concluded that both the theories of Vygotsky and those of Piaget found some validity in the student interview statements and survey results. There appears to be a role in the virtual world language learning process for both modes of learning: interacting with peers and mentors to build skills as proposed by Vygotsky, and

experimenting with “negotiating meaning” (Donato, 1994) to build language competency (as in Piaget.) It is the researcher’s opinion, however, that Vygotsky’s theory provides a better overall framework for the process of interacting with others to learn language which seems to be the key feature of virtual world role-playing activities as seen in this study.

Implications of Study

This researcher conducted this study in order to gauge the effectiveness of using a virtual world as a new method for teachers who want to help their students learn a foreign language. The primary implication of this research study is that virtual world simulations can be a useful tool for capturing student attention and reinforcing language-learning skills. Both the students and their instructor felt that the study was a success and that there was enthusiasm at the school for the continued use of the virtual world simulation. The positive results of this study might encourage other language instructors to make use of this technology in the future, whether in German or in other languages.

Practical Use of Sim Technology

In addition to using the simulation at the local high school, it might be possible to do further testing and refinement of the virtual world environment with a goal of eventually marketing it to a wider circle of users as an educational product. Researchers and software engineers refer to the process of refining a software product and “working the bugs out” as Alpha and Beta testing (Dustin, 2002). Alpha testing refers to doing the testing of a new software product “in house” and Beta testing refers to having actual users of the software product test it out, prior to the commercial release of a software product. This type of trial testing could be done at several high schools, including the school that is

already using the simulation. If the virtual world could be further refined and made available as an educational product it might be a commercially successful venture for the developers. This is already being done in Europe by the original developer of the simulation who markets the language village to schools, universities and businesses in Europe. There might be applications of this type of language simulation to language learning settings not only in the k-12 educational setting, but in higher education at the college or graduate school level, and at international corporations where people from countries and languages work together in a business enterprise.

Future Research

This research study focused on the virtual world environment as a new form of language learning activity. It provided qualitative and descriptive data about the usefulness of role-playing activities in a virtual world setting. Further research on this subject could reasonably be expected to build on this initial study to provide additional data on the topic which measures learning directly by using a Pre-Test/Post-Test design measuring language learning elements. For example, a study could be done to see if students learn more German vocabulary words if they do role-playing activities in a virtual world, compared to students who do similar activities in a traditional classroom.

Prior to this study the researcher was skeptical about the feasibility of doing a study which was a true experimental design on this subject due to what appeared to be confounding variables that could not be overcome. An example of a confounding variable: students communicating by talking to their friends or group members in the real world, not the virtual world, while in the computer lab. It might be difficult to ensure that

all the interaction between students actually takes place in the virtual world and that problem might in some ways compromise the results of a study comparing learning in the regular classroom to learning in a virtual world.

Design of Future Studies

But in spite of the obstacles to a true experimental design, it might be possible to do a study which took the virtual world to additional schools (or individual classes) and which included schools or classes that serve as control groups. For example, a school that had two German IV classes could have one group participate in the virtual world for a semester, and another group do typical lessons in the regular classroom, and see if there was an impact on learning from the virtual world on the students in the treatment group. This could provide a measure of the effectiveness of the virtual world on certain German language learning skills, such as vocabulary acquisition or speed of discourse in conversation. Validity and reliability would be controlled by having the same school and instructors for both activities, with the treatment variable being restricted to the use of the simulation in one group but not the other.

Another measure that could be applied to a treatment vs. control group study in the future would be to measure German enrollment in the year after a school implements a virtual world language. This relates to an unexpected finding from this study which was completed in the spring of last year. The German teacher reported to the researcher that there had been a remarkable rise in enrollment in her German courses in the fall following the study. Her enrollment of new German students had not varied by more than a few percentage points over the past twenty years. This year approximately 50% more students

signed up for her German classes. Though her opinion on this topic would be considered anecdotal evidence, she believed that enrollment spiked as a result of the students talking about the "fun game" which she overheard students talking about outside of school. This might be another element which could be measured in a future study on the implementation of a virtual world language learning simulation for high school students.

Future Studies of Gaming Aspects

Some other possibilities for future research on this topic are for related uses of virtual worlds learning activities. One possible course of study would be the relationship between the world of video-game playing and how it relates to the use of a video-game like environment for language education. One particular element which could be explored is whether or not there are gender differences in the effectiveness of virtual worlds' education. This relates to the findings from this study about male vs. female gaming habits, since the male students in this study reported that they spent much more of their time playing video games. Another line of inquiry might be to try to measure the verbal responses of students in a regular classroom, and compare their verbosity in the virtual world setting. The German teacher in this study believes that her male students are much less likely to "talk out loud" in class during German exercises, but she noted they seemed to be more verbal in the virtual world. It might be possible to measure this in a future study as well.

Other possible lines of research in the future might include combining role-playing activities with more video-game like puzzles or challenges. The current obstacle to making a virtual world that is truly comparable to those in the videogame industry is the

prohibitive cost of building the world and the scripting software which animates objects in that world.

Conclusion

The researcher felt this study in some measure successfully described student thoughts and opinions about a new technology for language learning. It also successfully demonstrated that the OpenSim virtual world environment could be used as a safe and effective virtual world environment for learning activities for high school students. Previous attempts by the researcher and others have used different virtual world platforms, such as Second Life and OLIVE, which had either severe privacy issues and child safety problems (Second Life) or severe functionality issues (OLIVE.) The OpenSim virtual world system was found to be a good solution to both of these issues, though it still would need to be improved significantly to reach the standard of "plug and play" before it could be readily adopted as a technological innovation (Rogers, 1962).

Additionally, the researcher concluded that one important aspect of this activity which the students described was the element of learning while playing. As Friedrich Schiller stated in his treatise "*Über naive und sentimentalische Dichtung*, "Man only plays when in the full meaning of the word he is a man, and he is only completely a man when he plays." To paraphrase this, it is Schiller's contention that a man (or woman) is no more truly himself, than when he (or she) is at play (Schiller, 1966). The students demonstrated this in numerous ways in the study and it was gratifying to the researcher to see an entire room of high school students smiling, laughing, shouting, and generally enjoying themselves while participating in this learning activity.

One other important finding of this study which became clear in the interview and survey responses is that a virtual world learning activity should be an "adjunct" or extension of the current classroom course of language study, not an online replacement of traditional classroom work. The students at several points mention that it would be good to use the Plauderstein sim at key points throughout the year to reinforce what they have been learning in specific chapters or modules of instruction. For example, if the students had completed a chapter about train travel, they could enter the virtual world and each group could practice the vocabulary and conversation needed to choose a route, pay for a ticket, and find the correct train to their destination. The German teacher also felt that this would be an appropriate use of the sim, and that it is how it is now being put into service at that high school.

One other closing comment which attests to the positive elements of this study is the fact that the teacher and students in the test school were eager to get the sim back for the next school year, and they are already using it (with some help from the researcher) and modifying the lessons, and expanding the number of classes participating in the Plauderstein activity. One additional innovation which the German instructor discovered is that the students from classes that participated in the sim last year are willing to come to the computer lab during their study hall periods and act as "tech support" for students just learning how to use the sim.

The overall conclusion about the students' experience and attitudes to the activity, as stated by the dissertation chair after reading the transcripts of the student interviews was, "fun is everywhere." It might also be said that the students not only felt like they were having fun, they also felt that this was a good way to learn the German language. As

one of the students said, "…it's really fun and helpful for us to apply our German to kind of like real life situations."

Limitations of Study

Issues Related to Host School

This study was held at the end of the 2013 school year partly because of the long process of IRB approval, school board approval, and parental consent and student assent forms. Another factor which was part of the decision to conduct the study activities before the end of the school year was the availability of a German transfer student who participated in the study. The researcher and German teacher hoped to conduct the study while the transfer student was still in America in order to see what her thoughts and feelings about the virtual world activity might be. The researcher felt that having a German student from Berlin provided additional insight for the study results, but it was also a factor in trying to get the study completed before the end of the school year.

There were several limitations which affected the outcome of this study. The first and foremost was the constraint of working to implement a functioning virtual world environment in the high school used for the study. There were several obstacles to overcome which were related to this particular school. One problem was that the school was undergoing a large scale renovation, which caused major disruptions to the scheduling of computer labs. The only possible 2 week period when computer labs were available was the last two weeks of the school year. This affected absenteeism (for the final survey) and caused other conflicts with the scheduling of the student interviews because students had end of the year activities to attend elsewhere.

Technical Constraints

There were additional limitations on the study imposed by the newness of the technology. The virtual world system had not been used previously in the United States, and it had not been tested in a classroom environment here. In order to make sure the technology functioned correctly, the researcher needed to be present for all aspects of the use of the virtual world, and this prevented the study from being a broader based and more statistically robust "true experimental design" (Campbell & Stanley, 1963). This would require (in the least) participation of more schools in order to procure a randomized sample of students and a control group. The study would have been enhanced if it could have been implemented at numerous schools with a larger number of students and teachers participating.

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Appendix A

Student Interview Discussion Guide

1. Tell me about your experience in the virtual world role-playing activity which you have just completed.

2. What was today's lesson like?

3. How would you compare it to similar lessons which you have done in a real classroom setting?

4. Describe your interaction with the other students who participated with you in the role-playing lesson.

5. In what ways do you usually participate in your German class in the real classroom? Was this virtual world role-playing activity different? Why?

6. What did you personally take away from this lesson?

7. Can you name any specific elements of the lesson which you learned by interacting with other students in the simulated German village?

8. Were there any special challenges that you encountered in doing this learning activity?

If so, please describe them.

9. Tell me about what it was like speaking German out-loud in this activity.

10. Is there any other information about the virtual world role-playing activity you would like to share, including suggestions about how this activity might be improved?

Appendix B

Student Survey

Demographic Information

1. High School Grade Level?
_____ Sophomore
_____ Junior
_____ Senior

2. Age? _____

3. Gender?
_____ Male
_____ Female

Survey Questions:

4. Do you play videogames regularly? (Note, for the purposes of this study "The Sims" is considered a videogame – others might be "Mass Effects," "Team Fortress," "SuperMario Bros" "Farmville" etc.)

_____ Yes

_____ No

5. If you answered "Yes": about how many hours do you spend playing video games each week?

_____ 0 – 3 Hours

_____ 3 – 6 Hours

_____ 6—10 Hours

_____ 10 or more Hours

6. If answered "Yes": what game do you play most often?

_____ (Name of Game)

7. What platform do you use most often: (Check one)

_____ Computer

_____ Gaming Console (such as Wii, Xbox, PS3)

_____ Handheld gaming device (Nintendo DS, PSP system, Sony Ericsson, etc.)

_____ Mobile phone/Smartphone

Please use the following scale to rate your response to each of the following statements. 1 = strongly disagree 2 = disagree 3 = not sure 4 = agree 5 = strongly agree.

	1 = strongly disagree	**2 = disagree**	**3 = not sure**	**4 = agree**	**5 = strongly agree**
8. I enjoyed the role-playing lessons in the virtual world village of Plauderstein.	○	○	○	○	○
9. I found it easy to interact with others as an avatar.	○	○	○	○	○
10. It was easy for me to move around as an avatar.	○	○	○	○	○
11. I felt comfortable interacting with others as an avatar in the village.	○	○	○	○	○
12. It was easy to talk with others by voice using a microphone.	○	○	○	○	○
13. It was easy to communicate with others by typing in the chat box.	○	○	○	○	○

	1 = strongly disagree	2 = disagree	3 = not sure	4 = agree	5 = strongly agree
14. I liked typing in the chat box in the virtual world better than talking by voice using the microphone.	○	○	○	○	○
15. I thought the technology worked well and was trouble-free.	○	○	○	○	○
16. I like role-playing activities better in our regular classroom than in the virtual world.	○	○	○	○	○
17. I felt that the role-playing activities in the virtual world helped me practice my German skills	○	○	○	○	○
18. I learned some new vocabulary words by interacting with others in the virtual world village.	○	○	○	○	○
19. This activity would help me if I actually go to visit Germany and try to talk to people there.	○	○	○	○	○
20. I feel nervous speaking German out loud in the regular classroom.	○	○	○	○	○
21. I thought doing the role playing lesson in the virtual world village was fun.	○	○	○	○	○
22. This role-playing activity was a waste of time.	○	○	○	○	○
23. I think this is the way students will practice German language skills in the future.	○	○	○	○	○
24. As I practiced learning words and phrases with others in the virtual world sim I gained new confidence in speaking German out loud.	○	○	○	○	○

	1 = strongly disagree	2 = disagree	3 = not sure	4 = agree	5 = strongly agree
25. Other students helped me figure out words and phrases at the hotel, train station, campground, and police station.	○	○	○	○	○
26. I figured out most of the words and phrases I needed to do these activities on my own.	○	○	○	○	○
27. Having other people around as avatars in the sim made learning the language more confusing.	○	○	○	○	○
28. I got lots of tips on how to do things in the sim from my classmates.	○	○	○	○	○
29. I learned more when I took the role of station master, police officer, campground attendant, and hotel clerk, than I did when I was just a tourist.	○	○	○	○	○
30. This activity would be better if it was more like a videogame that I could just play by myself.	○	○	○	○	○
31. I got kind of stressed out and nervous when I had to pretend to be a tourist in the virtual world village and talk in German.	○	○	○	○	○
32. After a while I forgot I was an avatar and felt like I was just hanging out in a real German town.	○	○	○	○	○
33. Some of the students misbehaved while they were avatars.	○	○	○	○	○
34. Our teacher took an active role in helping me learn some new German skills during this activity.	○	○	○	○	○
35. This would have been a better activity if there were real German speakers as avatars present in the sim.	○	○	○	○	○

	1 = strongly disagree	**2 = disagree**	**3 = not sure**	**4 = agree**	**5 = strongly agree**
37. The videogames that I play are a lot more fun than this activity.	○	○	○	○	○
38. This sim would need to be developed a lot more for me to feel like it was really a German town.	○	○	○	○	○
39. I don't think I would like it if there were real German people as avatars in this sim.	○	○	○	○	○

Appendix C

Interview Transcriptions

Interviews: Plauderstein Virtual Worlds Activity

German II:

1M - 1: (Notes on notation: 1M -1 means "Student subject #1, Male, - 1st Interview." and "I. = Interviewer")

I. "How would you describe your virtual world activity? Can you provide a few words to describe it?"

1M: "I thought it was fun. It was a little tricky to control lines, and other than that I didn't have much of a problem with it. It was easy, fun. It was really slow loading up."

I. "You guys had the biggest class so it was slow for your class – that might be something we work on technically …"

I. "What do you think you learned from the German lesson part of it?"

1M. "It was really fun. I learned new words, like "camping-fire" I had to basically put that together because I learned fire was "feire" and I knew camping. . . other things, basically working as a team and what we did was co-operation."

I. "How would you compare what you did yesterday to what you did in a real classroom setting in the past."

1M. "It was pretty much the same thing – we sometimes worked with a group and sometimes by yourself, and basically on your own. And we did learn on our own anyways, so …"

I. "How much were you able to interact with the other students that were with you in the role-playing lesson?"

1M. "We could really interact. We could interact with the surroundings, with the voice chat. Nathan, one of the people in my group was on the *other side* of the classroom, and that really helped when we did the voice chat and the scenario. I thought it was really good."

I. "So even though he was on the other side of the room.."

1M "The language lab – in my opinion it works better if you are in a group, you should be separated, because you hear them better. If you're in a group, if you're separated, you hear them better because you hear them echo."

I. “You get almost, like reverb …

1M. “Yeah, from the delay.”

I. “In what ways do you usually participate in your German class in the real classroom, and what was this activity different?”

1M. “Not really. We worked with a team a couple of times we did role-playing, we each said a part and we did count that as “speaking points.” It’s not really that much of a difference, other than that it is on a computer – and I’m a nerd, I love computers. So it was a lot easier for me than probably for other students.”

I. “Was there anything about it that made you uncomfortable about doing the lesson in the virtual world? “

1M. “Nothing at all. I thought it was fun. “

I. “Was there anything about doing this lesson that you liked better than doing similar lessons in the real classroom?”

1M. “I think it’s more of just the interaction part with this computer, that’s probably why I like it. So that’s why I like it a bit more than just in the classroom. That, and I actually moved around, while in the classroom I have to sit there, and listen, and so it’s not much of difference. . . it’s more of an interaction. “

I. “More of like a feeling of being able to move around and look at things ?”

1M. “Yeah, yeah.”

I. “Was there anything more about the activity which you found challenging?”

1M .“Nothing at all, really. Other than the fact that I don’t know some words, so I just had to kind of figure it out myself. Nothing different than that.”

I. “What was it like speaking out loud? Was there anything about speaking out loud in this activity that was easier than speaking out loud in class?”

1M. “I think so, because we did get with a group of friends, that, and the fact that we could talk freely so … we have to keep quiet in class like most classrooms.”

I. “So in the classroom it’s supposed to be one person talking.”

1M. “Yeah”

I. “But in this two or three could talk”

1M. “Yeah, it was pretty fun. Especially when you’re at one center, and you could only hear how many metres the other people are away. So only those group of people could actually hear each other. Basically, it makes a better interaction.”

I. “So compared to the regular classroom, it would be hard to have that kind of activity with four groups at once in that room, because of the noise?”

1M. “Yeah, yeah. So even in the game, if they’re paired up, so they’re not close enough, it still works better “

I. “Anything else about doing this activity that you’d like to share – your opinion?”

1M. “I thought it was fun. I like the fact that I figured out that you can use the escape key and then use the WASD keys – and that’s how it is in a lot of games I play, so …”

I. “My son complained about that ..”

1M. “That’s one of the best things – I thought “I’m gonna click it, escape, for no reason, because it closed down the chat bar at the bottom and I was able to use the WASD keys. I don’t even know why I did that … but … (laughing) “Ah, that’s handy!” and it was easier.”

1M - 2:

I. “How would you describe the virtual world experience that you did yesterday?”

1M. “It was pretty fun. I was stuck in the Schnitzel Cafe, or whatever, but, one of the glitches – like if you sat down you were sideways on the chair or floor”

I. “Yeah, there is something wrong with the scripting to the chairs which needs to be fixed. Some of the students ended up outside the shop and had to walk back in.”

1M. “Yeah, I was walking but halfway in the ground, and as I kept walking I came up out of the ground (laughs). Then another one was after we were done, I went out and sat in the car, but it sat me in the ground under the car and I could not get back up – I couldn’t fly, go anywhere …so I had to teleport to another group and then teleport back.”

I. What was the sim in the restaurant like?

1M. Nothing was really bad about it …

I. What do you think you learned doing the restaurant sim as your second sim

1M. Nothing - - I messed with the doors and stuff like that. I found you could click the busy and make it go “busy” or “free” or “open” or “closed.”

I. How would you compare that to doing the lessons in the real world setting?

1M. “It was decent. Like, decent, really, yeah.”

I. “Yesterday, were you able to interact with the other students in the role playing lesson with you? How did that go?”

1M. “It went OK, but sometimes it got annoying, because you could hear the surround sound. Other people, I don’t know who’s mike, but other people in class you could hear. It would go through their mike, and then come through mine, and that got a little annoying with that factor.”

I. “So you were getting feedback from the mike?”

1M. “It’s picking up a lot more than just my voice. It got real annoying…”

I. “You guys have the biggest class, by a long shot ..”

1M. “Yeah, we do.. It would have been split up, but since there is just one German II class this year, they had to just stick the whole clump of people together.”

I. “Compared to how you usually participate in the regular classroom, was yesterday’s role playing activity different?”

1M. “Not really, we just stood there and talked. And every now and then you saw Frau. And on my screen she didn’t load right away, so she was just like a glowing ball. And then she’d come in and I’m like “Oh, hey, it’s Frau.” (laughs)

Other than that, it’s nothing really. She’d listen and if she was there she would help us with, whatever was the word.”

I. “So she came to where you were doing the activity and did it with you?’

1M. “Yeah”

I. “Was there anything about doing the lesson on the computer that made you feel uncomfortable?”

1M.“No. I like the computer, and so it was easier in my opinion, and I was with my friends. So it was just a lot easier overall”

I. “What do you mean by easier?’

1M. “Like, I get to talk when I need to – so I can ask questions without interrupting everybody else. Since we are paired up into groups, I only interrupt my group instead of, like, the whole entire class. So it was a little bit easier for that reason.

I. “So it is easier to work in a small group where you can just interact with each other?”

1M.“Yeah.”

I. “Any special challenges in doing the learning activity, either in the technology or the language part of it?”

1M.“I got an 88 in that class, so it’s always been about my average. When I need to I ask friends. Some of them are really good with German. But, I’m not like that. I can read it most times, but I can’t really talk it. . . . So it’s a little trouble for me.”

I. “OK, well, that’s the next one, Tell me what it’s like German out loud in the activity. Was it easy or difficult?”

1M “It’s . . . Well, it’s a little bit harder in the classroom. Because, most of my friends, the ones that I actually do talk to that help me, they are on the other side of the room. So if we are all grouped together then someone can come in and say “Yada, yada, yah,” and tell me how to do it like, and then I think it is a little bit easier. Plus the fact that you are grouped with someone you know”

I. “So it was actually people in your group that helped you speak out loud –

1M “Yeah, Everybody helped each other and helped you, and ..

I. “Anything else about the role playing activity that you would want to discuss?”

1M “No, we’ll, actually I thought it was fun, and I managed to get everyone in my group to add as a friend so I can just teleport to them easier. I thought it was cool.”

1M - 3:

I. “This is Cxxx, final interview. What activity were you guys doing today?”

1M “The train station activity.”

I. “How does that compare to the ones you did before?”

1M “Pretty much the same thing – one helps out another, same thing.”

I. “Any suggestions on how this might be improved?”

1M “Not that I can think of, I mean, it’s helpful, it helps you learn. It helps with our grade, with our speaking points and all that. We don’t get much of a chance to get speaking points, and working with friends kind of helps us with that.”

I. “So you can all get speaking points at the same time?”

1M “Yeah.”

I. “Any overall suggestions now that you are wrapping it up?”

1M “No, not really, I think it was pretty good. There was, of course, like little glitches like when you try to sit down you end up laying down on the ground, stuff like that.”

I. “So technically it still has some things to work out?”

1M “Yes.”

I. “Do you think this is something you would like to continue doing?

1M. “I think it would be fun to continue, it would help us out, anyway, with our speaking points, it’s interesting and fun. . . I’m sure it will get harder over the years, for speaking point wise and so it would be helpful cause this could teach you more.”

2M - 1:

I. “Can you think of three words that would best describe the virtual world role-playing activity which you just completed?”

2M. “Talkative – fun, it was like, you had to find the way you were going .”

I. “What did you think that you learned from the German lesson?”

2M. “Some experience that German was like, how Germans talk in the real country.”

I. “How do you compare what you did in the simulation to what you do in class?”

2M. “They’re kind of the same, because in class we often talk about how Germans do this … and that was kind of similar because we did the hotel and that was kind of how they did a hotel.”

I. “So kind of an extension of stuff you already have been doing in class?”

2M. “Yep.”

I. “Were you able to interact with the other students that were with you in the world?”

2M. “Sometimes. Sometimes I couldn’t hear them, when there was a problem with the microphone.”

I. “When you’re in class how do you usually participate – was it any different in the role-playing activity?”

2M. “Kind of was – because usually in class I’m kind of quiet, I don’t really say much. But there I had to say, um, sentences and stuff.

I. “Did you feel uncomfortable at all doing the activity in the virtual world?”

2M. “Not really, a little bit, but not really.”

I. “Is there anything about doing the lesson in the virtual world that you like better than doing the lesson in class?

2M. “Yeah, because you can play around, walk around and say stuff to people.”

I. “So you liked the freedom of being in the sim?”

2M. “Yeah.”

I. “Was there anything that was difficult or that you found challenging in the learning activity?”

2M. “Not really because you had to do was speak and talk your lines.”

I. “Did the lines come easily to you?”

2M. “Sometimes they did, and sometimes I had to, like, say the word in English since I didn’t have the German word.”

I. “How was it speaking out loud in this activity compared to speaking out loud in class?”

2M. “I felt a little more comfortable because if I say something wrong, I tend not to speak up and say something again in class. And in that (the sim) I could say more lines than what I usually do in class. And if I mess up, I’ll say it again.”

I. “So you didn’t think it was as big a deal if you make a mistake in this, than if you make a mistake out loud with the teacher?”

2M. “Yeah, that’s right.”

I. “Anything you would like to share about the activity, your opinons?”

2M. “I thought it was fun and cool to walk around, say stuff in German …go from place to place, and see what they had to do, and stuff. So, yeah, it was fun.

2M - 2:

I. “What was your activity yesterday?”

2M. “Yesterday we went to the Bahnhof and said sentences about taking a train trip.”

I. “How would you compare that to the one you did before. Was it easier? Harder?”

2M. “It was about the same. You did the same stuff. You just talked about a different thing when you were talking.”

I. “Did you feel like you learned some things from the lesson at the train station?”

2M. “Yeah, I think I did because it’s different how we do it, and how the Germans do it. There’s some differences between us and Germans.”

I. “Did you have to find a route on a map at the station, or was it all in the script?”

2M. “Most of it was on the script. I had to look up one thing to get to the Bahnhof.”

I. “How did it go interacting with the other students that were there in the role-playing activity?”

2M. “We just took turns, and stuff like that.”

I. “Was everyone able to participate?”

2M. “Yeah.”

I. “Was it different doing the activity in the virtual world? Could you describe it?

2M. “A little bit. Last time I did it I really didn’t know what I was doing. But now since I’ used to it - it’s basically just like speaking in a classroom but you’re speaking through microphones and people can hear you.”

I. “Anything that made you feel uncomfortable about doing it in the virtual world?”

2M. “Not really – maybe saying a few words wrong.”

I. “Were you challenged by anything in this latest learning activity?”

2M. “Yeah, there were a few words that I didn’t know.”

I.”How was the vocabulary in the train station simulation?”

2M. “The vocabulary was about the same?”

I. “How did speaking out loud go?”

2M. “It was kind of hard sometimes, because we have a lot of people in our class. But it went OK.”

I. “Any general thoughts about how it went being in the simulation?”

2M. “I thought it’s pretty fun because you get to see how Germans, um, do things different than we do.”

2M 3:

I. “What role playing activity are you working on today?”

2M. “The restaurant.”

I. “So you’ve done all 4 of them?”

2M. Yeah, this is our last one.”

I. “What is the restaurant activity like?”

2M. “It seems a little different because – I don’t know, we haven’t finished the whole thing yet.”

I. “Do you have any final thoughts on the activities?

2M. “Yeah, I thought it was pretty fun because you get to see how things work in the virtual world. You can see how it was different between how Germans do things in the virtual world and how we do it in the virtual world. It was fun.”

I. “Can you think of any other activities that it might be helpful to do while you’re doing this type of activity?”

2M. “No, not right now I can’t”

I. “Do you think you would like to do it next year?”

2M. “Yep, I would like to do it next year. Things that I could, like, improve on would be to try to say more words in German and try to get better at it.

I. “Do you think this is a good activity for getting your speaking points for class?”

2M. “Yeah because you can talk – feel more comfortable talking out loud, with my friends than just in a regular class…”

3F - 1:

I. “How would you describe the virtual world role-playing activity which you did yesterday”

3F. “I think it was fun. I learned, better.”

I. “Are there any other words you would use to describe it?”

3F. “Different – different from sitting in the classroom.”

I. “What do you think you learned from the lesson in the virtual world?”

3F. “How to form sentences better, and, how to talk. Like you would ..”

I. “So it’s more?”

3F. “Realistic.”

I. “How would you compare it to doing role playing lessons in the classroom setting? Like doing a simulation of going to a hotel in the virtual world?”

3F. “The virtual world is like, putting it, to life – making it real, yeah.”

I. “So it kind of brings it to life?”

3F. “Yeah, than just talking in the classroom.”

I. “How much were you able to interact with the other students in the role-playing activity?”

3F. “Pretty good. Like we all had a part, we could talk.”

I. “In what ways do you usually participate in the real German classroom, and how was this different?”

3F.“Well, usually we just get in groups, and we make up on our own, but in this one we had a script in English and we’d have to make it German. So that was different.”

I. “The scripting was also part of the difference between what you’d done in the past in the classroom?”

3F. “Yeah,”

I. “Was there anything that made you feel uncomfortable about being in the world and doing the activity”

3F. “Not really, no.”

I. “Any special challenges to doing it in the virtual world?”

3F. “We have to use our memory with it more – like, words we already know.”

I. “How was it speaking German out loud in the virtual world?”

3F. “It was pretty easy. I didn’t feel self-conscious …”

I. “Any final comments on the virtual world activity?”

3F. “It was fun!”

3F- 2 :

I. “What sim did you guys participate in?”

3F “The Hotel”

I. “How would you describe the hotel sim?”

3F. “It was the same. We understood it a little better this time.”

I. “What parts would you say you understood better?”

3F. “Like, what to do and what to say better.”

I. “How much do you feel like you learned from the German lesson in the hotel?”

3F. “Um, we learned how to form sentences on my own.”

I. “How would you compare that to similar lessons you have done in the regular classroom?”

3F. “Well, we do it, but it’s just not, like, real. . . but in the game it’s real.”

I. “We’re you able to interact with the other students in the virtual world?”

3F.“Yeah, pretty good.”

I. “Compared to how you usually participate in role playing activities in the regular classroom, how would you characterize this as being different?”

3F. “We actually had a place that was real.”

I. “So, again, you are getting a sense that this is taking place in a real location?’

3F. “Yeah, like you are in a real place, and not like you are in a classroom.”

I. “Did you feel uncomfortable about anything in the virtual world hotel sim that you did?”

3F.“No.”

I. “Was there anything about doing this lesson in the virtual world that you liked better than similar lessons in the real classroom.”

3F. “It’s more fun, more interesting, than doing lessons in the regular classroom.”

I. “Any special challenges in doing this sim compared to the first simulation that you did?

3F. “This hotel scene was easier than the first one.”

I. “Were there any problems or challenges with the use of the voice and communicating with others in this lesson?

3F. “We had some problems with the voice when we got started, but that was about all.”

I. “Would you like to share your opinion of the virtual world activity that you completed?

3F. “It was fun.”

3F - 3:

I. “What sim did you guys work on today?”

3F. “The campground.”

I. “How is that going compared to the other sims you did before?”

3F. “Pretty good, Jocelyn was having problems with her voice stuff. But she got that fixed.”

I. “How is it going with the language lesson?”

3F. “We’re doing better, today, actually. The more we do it. . . it definitely gets better.”

I. “Do you think this would be something you would like to do next year?”

3F. “Yeah, that would be cool.”

I. “Any suggestions on how this could be improved?”

3F. “I don’t know, different places? “

I. “How was it working with a script?”

3F. “I kind of liked the script. So we actually have a general idea about what we need to say.”

I. “Do you think this is a good activity for getting your speaking points?”

3F. “Yes, I definitely do. It’s easier than in class.”

I. “Any final suggestions or comments?”

3F. “I liked it, it was fun.”

4F - 1:

I. “Could you describe what you thought the virtual world role playing activity was like – a few words about what you thought about it?”

4F. “I think it makes learning a little bit more fun. We have to get a certain amount of speaking points and this kind of makes it fun to interact with everybody and see them in a different way.

I. “What do you think you learned from the lesson which you did in the virtual world?”

4F. “We had to go to certain areas in the virtual world, and we were paired up with random people and so it taught you to listen to each other with someone you’re not used to talking to all the time. And it was different – it was a different experience.”

I. “How would you compare this to similar lessons which you have done in the regular classroom.”

4F. “It was probably more interesting, instead of the normal classroom atmosphere it was something that was a little different and a little challenging in the beginning to get used to but it made it fun.”

I. “How much were you able to interact with the other students that were with you in the role play?”

4F. “My group interacted very well. We understood how to talk with one another and once we assigned roles we were going right through our script.”

I. “In what ways do you usually interact in the regular classroom, and in what ways was this virtual world role play different?”

4F. “In class it’s normally raise your hand, you give an answer, and then Frau may explain it a little bit. But in the virtual world project, its everyone has to participate, whether they have the wrong answer or right and the students give you feedback to tell you if you’re right or wrong.”

I. “You get feedback from your students that you might not normally get?”

4F. “Yes.”

I. “Was there anything that made you uncomfortable in doing the activity in the virtual world?”

4F. “Maybe some of the people could have been made uncomfortable being paired with someone they didn’t know in their groups. But I knew everyone in my group, and I was pretty comfortable talking to them.”

I. “Was there anything about doing this in the virtual world that you liked better than doing similar lessons in the real classroom?”

4F. “It was different, it was fun, it was a lot funner. It was something new.”

I. “Were there any special challenges you encountered in the learning activity?”

4F. “Probably just learning how to move around, and travel throughout the world.”

I. “What was it like to speak out loud during the activity?”

4F. “It was easier to speak out loud if you weren’t around another group. If you were around another group you would pick up on them and it would get confusing and then you would hear a whole bunch of static. But when you were far apart from someone else you could hear each other clearly and we were helping each other out through the headsets.”

I. “Anything else of your opinions you would like to share about the activity?”

4F. “I just think it’s something different that is nice – it’s different, it could work for other people, it’s a lot funner.”

4F- 2:

I. “Can you describe your latest experience in the virtual world?”

4F. “She gave us all assigned scenes and roles. It was a little bit hard, we had to go to a campground. I was looking for it all over. I found it but it took a little while to find it.”

I. “Did you find it by using the map, or by experimenting?”

4F. “I found it by experimenting. I walked around, flew . . .”

I. “So you guys did the campground activity, how would you describe that activity?”

4F. “It went pretty well, it’s a little difficult coming up with our parts, as we go. But we’re trying something a little different this time, practicing it before. So I think it will make it run a lot more smoother.”

I. “So your group is practicing the one for the next couple of sims before going into the world?”

4F. “Yeah.”

I. “What do you feel like you learned from the German lesson in the campground?”

4F. “I learned a little bit on how well other people are understanding it. Some people are having a little bit of trouble learning it. It’s a little different learning experience, and some of the vocabulary is a little different in the sentences so we were looking back and forth, trying to put the sentences together.”

I. “Did you get more of a sense of where people are at in terms of their vocabulary than you would in a regular classroom?”

4F. “Yeah, because in the virtual world you have a lot more opportunities to talk, especially in German you can see where, see how other people are understanding, dealing with it.”

I. “How was it interacting with the other students in the Campingplatz?”

4F. “It was fun, we were having a good time. We were helping each other out and sometimes we couldn’t think of a word we’d all sit there for a little bit and think of it, and it would pop up.

I. “In what ways do you usually participate in the role playing activity, and how was this different?”

4F. “In the real classroom, Frau normally, since she’s the teacher, she gives us guidelines and basically she’s leading us and she’s the teacher. But in the virtual world we’re the teachers, and we’re showing each other how things work, and then we’re kind of running the lessons ourselves.”

I. “Was there anything which made you feel uncomfortable about the activity in the virtual world in general.”

4F. “Not in the virtual world itself, but some people in the group weren’t participating. There was one person, they weren’t participating. You shouldn’t just stand there – if you’re going to be there you might as well participate. But that wasn’t a problem with the virtual world itself – the virtual world is fine.”

I. “Was there anything in the virtual world that you liked better than a similar lesson in the real classroom?”

4F. “Like I said before, you can make it a little more independent. It is more fun to be with your friends and classmates kind of teaching you instead of the teacher.”

I. “Were their challenges in terms of the technology or in terms of the language parts of it?”

4F. “The language is a little difficult because some of the vocabulary we don’t know yet. We had these big lists on the front of our scene script that show you all the new vocabulary and we can look that over. And it’s a little difficult making it up on the spot, but I think it will go a lot smoother practicing.”

I. “Was it easy or difficult to speak German out loud for this activity?”

4F. “I think it was a little easier than the first time. It went smoother and we were in the Campingplatz and we had already done that lesson in class so we knew a little bit of the vocabulary for it but whereas maybe at the hotel – that one may be a bit more difficult to do.”

I. “Any other general comments about the activity that you did?”

4F. “It’s just been interesting.”

4F - 3:

I. “What activity did you guys do today?”

4F. “Today we did the hotel … we got done early. It was pretty cool, we got to discover what’s around the town and mess with what’s around, with the animations that you can click on.”

I. “How did the hotel simulation go compared to the other ones which you did before? You did the all four, right?”

4F. “The hotel was a lot shorter, there were less parts, so it wasn’t as hard to figure out the parts and do it.”

I. “How do you feel this activity is for getting your speaking points?”

4F. “It’s really helpful because you can do it with people you are comfortable with. It goes a lot smoother.”

I. “Any final thoughts or comments on doing the sim activities? Did you have an overall positive or negative view of this?

4F. “It’s positive – I think the virtual world idea is a great idea. It’s really neat”

I. “How do you think this would be as an activity to add to what you do in your German class throughout the year?”

4F. “That would make it funner and give us something to look forward to, yeah.”

German III:

5F- 1:

I. “Can you think of some words to describe the virtual world’s activity that you did yesterday?”

5F. “I think it’s interesting and it’s a more entertaining way of learning than what we did in class.”

I. “What did you learn from the lesson itself?”

5F. “I guess I just learned some new words – words that I had forgotten that Frau gave us on the vocab sheet for that specific scene that we were doing.”

I. “How would you compare what you did yesterday to what you have done in the regular classroom setting.”

5F. (Laughs) “That’s way more fun … than just sitting there and getting lectures. It’s more fun to do hands on things and actually apply it.”

I. “How much were you able to interact with students that were present with you in the role playing lesson?”

5F. “A lot. The whole time I could talk to them.”

I. “In what ways do you usually participate in your German class? Was the role playing activity different and if so, why?”

5F. “ Well, in normal German class we mostly just go through the book – I mean, Frau tries to make it interesting but she has to stick to the lesson. We just go through the book, and learn the vocab and grammar for that section – but that was just like applying it all into one thing.” (Did she mean the VW?)

I. “Was there anything that made you feel uncomfortable when you were doing the lesson in the virtual world?”

5F. “No, not at all.”

I. “Was there anything about doing the lesson in the virtual world that you liked better than doing a lesson in the regular classroom?”

5F. “Yeah, it’s like more entertaining and fun. It’s fun to see everyone try to speak the things were supposed to be saying and move their avatars around and stuff.”

I. “Can you describe any difficulties or challenges that you had in doing the activity in the virtual world?”

5F. “I had a little bit of trouble putting all the words together sometimes. But that’s just me personally. And other than that, nothing.”

I. “What was it like to speak German out-loud in the activity?”

5F. “It was a bit difficult because you have to remember where the verbs go. If it’s written in English, German word order is completely different so you have to put it together yourself.”

I. “Any other information about the role playing activity you would like to share with me?”

5F. “I think it’s fun. I’m glad we’re doing it.”

5F - 2:

I. “Can you describe the activity which you completed yesterday?”

5F. “It was pretty fun, except (laughs) I accidentally turned my microphone off. Other than that it was fun.”

I. “What activity did you do yesterday?”

5F. “We did the Camping-platz yesterday.”

I. “What did you feel like you learned from doing the Camping-platz activity?”

5F. “I’m learning how to apply my German myself, and not have – well, Frau helps when she is listening in, just a little bit though, but it’s us applying it ourselves.”

I. “How would you compare it to doing a lesson in the regular classroom?’

5F. “It’s more independent, less help from the teacher. It’s more do it yourself, kind of.”

I. “How much were you able to interact with the other students?”

5F. “A lot. We all took turns and switched parts. We were able to do it, go through it, twice yesterday.”

I. “In what ways do you usually participate in the German classroom, and how was this activity different?”

5F. “It was different because when we role-play in class you kind of have to picture everything in your head that’s going on, but in this respect you’re watching it on a computer screen.”

I. “Was there anything that made you feel uncomfortable about doing the lesson in the virtual world?”

5F. “No.”

I. “Were there any special challenges in doing the activity?”

5F. “No, because we learned how to use our avatars in the introduction day, so it’s not hard in that way.”

I. “How was it speaking out loud in the role-playing activity? “

5F. “It was pretty easy .”

I. “How does it compare to speaking out loud in the regular classroom, did you feel more or less comfortable speaking out loud?”

5F. “I feel more comfortable, because not everyone is staring at me, they’re looking at my avatar. In class, everyone’s looking at me so that’s a little more nerve-wracking.

I. “Does it make a difference speaking with your classmates?”

5F. “We all get along in there so nobody’s mean to you if you mess up or anything. We all just try to help each other.”

I. “Any other thoughts you’d like to share about how the activity has gone so far.”

5F. “I like it a lot, it’s real fun and helpful and it’s like an interesting way of learning.”

5F- 3:

I. “How many of the activities have you completed?”

5F. “We’ve done them all now.”

I. “Which one are you doing today?”

5F. “The train station.”

I. “How does that compare to the other three that you did?”

5F. “It’s a little more difficult – just because there are so many parts to it.”

I. “What’s your overall view of the virtual world activity?”

5F. “I think it’s really fun and helpful for us to apply our German to kind of like real life situations.”

I. “Do you think this would be something good to do in the future for German students?”

5F. “Definitely, it is just a lot more fun.”

I. “Are there other ways you could think of doing this activity or using this activity to learn German?”

5F. “Maybe doing the unit in class, like the train station unit or an airplane unit, doing the thing on the internet at that time, because it will help, it will be fresh in our minds.”

I. “How much time do you think you would need to be in the world to have it benefit one of those units like the train or airplane one?”

5F. “Just like a day or two.”

I. “Any final thoughts on the activity in the virtual world?”

5F. “I really like it.”

6F - 1:

I. “Can you think of a few words that would describe your virtual world role playing activity you did yesterday?”

6F. “It was interesting, new, kind of advanced. Figuring out how to get around was different from any videogame I’ve done before.”

I. “What videogames have you played?”

6F. “Not really very many – but I know the Sims game which is kind of different with the avatars and stuff it was – a little harder to figure out how to get around and talk , but once you got the hang of it, it wasn’t hard.”

I. “What did you learn from yesterday’s German lesson?”

6F. “I thought it was a good way to help us practice talking, because we don’t get a chance to do that that much, so I thought it helped in that way.”

I. “How would you compare it to lessons you’ve done in the regular classroom setting?”

6F. “We weren’t really learning new material, German-wise, but we were having a new experience to practice what we have learned in the past. So it was kind of different, kind of not.”

I. “Do you do similar things in the classroom?”

6F. “Yeah, sometimes we’ll have conversations within a group about a certain topic or Frau will ask us questions and we’ll have to answer them in German. We get speaking points for those.”

I. “How much were you able to interact with the other students in the role playing lesson?”

6F. “Quite a bit – a lot! I think we interacted a lot more than I thought we would>”

I. “Can you describe what that interaction was like?”

6F. “It was kind of hard at some points because some people might not remember as much of the grammar or the vocabulary. But after that it started to flow better.”

I. “In what ways do you participate in the regular German classroom, and how was this different?”

6F. “We’ll all participate in answering questions in the regular classroom. But I think it was different in the virtual world because we all got to work together more than we do speaking-wise in the class.”

I. “Was there anything that made you uncomfortable or that was a challenge in the virtual world activity?”

6F. “It was kind of hard to find some of the different places we were supposed to go to – but after awhile we figured it out.”

I. “What was it like speaking German out loud in the virtual world activity compared to the regular classroom?”

6F. “I think it was a little harder because we’re so used to writing – we’ll do essays. But it gave us practice speaking so we can get better at it.”

I. “Was there anything about the virtual world activity that you would like to share with me?”

6F. “I thought it was a really good idea. It’s something new and it gave us a different approach to how we are learning in the classroom. I thought it was a really good idea.”

6F- 2:

I. “How would you describe your experience in the virtual world which you did yesterday?”

6F. “It was better than the first day. It was easier to get around, and I knew what I was doing.”

I. “What role playing activity did you do yesterday”

6F. “We did the campground scene.”

I. “What would you compare the lesson you did yesterday to the one which you did before?”

6F. “The one yesterday wasn’t as good because there were some issues with speaking – someone had trouble with the voice working. But I think it was easier when there were more people in the group. I like working with bigger groups better.”

I. “How many people did you have the first day, and how many did you have the second?”

6F. “We had four the first day, but five yesterday – it was just a little bit bigger.”

I. “How did you interact with the students in the virtual world activity yesterday?”

6F. “We interacted more, and it was easier because we had more people who could play the parts of the scene.”

I. “How would you compare it to how you usually participate in the regular classroom?”

6F. “I do like working in the bigger groups better, but we didn’t have as many opportunities to talk, if that makes any sense. Usually in class we have more chances for speaking points, but since we were in a group it was a little harder to get all our speaking points in.”

I. “Was there anything which made you uncomfortable doing the lesson in the world?”

6F. “No.”

I. “Was there anything about doing this lesson in the virtual world that you liked better than doing similar lessons in the real classroom?”

6F. “I think I liked the virtual world better because it gave us a real life experience, but not in real life. We were able to use the grammar that we’ve learned, and the vocabulary that we’ve learned.”

I. “Were there any challenges to doing the virtual world activity?”

6F. “Just some technical issues – there were still some problems. One of our partners, it wasn’t working for her to talk into the microphone.”

I. “Did you find it easy or difficult to speak out loud for the activity?’

6F. “I thought it was pretty easy – I didn’t find it that hard.”

I. “How does that compare to doing that in class?”

6F. “It’s sometimes a little harder if Frau’s not there to help us with what we should say. So that was a little harder if one of us didn’t know how to say certain things.”

I. “So you were looking to each other rather than looking to Frau for the right thing to say?”

6F. “Yeah.”

I. “Anything else, any other thoughts you would like to share about the virtual world activity?”

6F. “I think it’s a good idea. And one of the ideas which Frau had was that after we have done a certain chapter, like the train station chapter, we would do the train station part of the virtual world. I think that would make it easier, because some of these things we haven’t had since last year, and it’s hard to remember everything. If it was built within the school year I think it would be a lot better.”

6F - 3:

Not available – on a school trip.

7M - 1:

I. “Can you think of several words that would best describe your experience in the virtual world activity?”

7M. “It’s different and new …

I. “What do you think you learned from the German lesson you did yesterday?”

7M. “It reinforces vocabulary, and kind of brought back what we’ve learned already. And it showed that German is not just one person saying a sentence and someone respond – it goes on and on like a regular conversation does.”

I. “How would you compare it to lessons done in the regular classroom?”

7M. “It was *a lot* more fun. It was more interacting with other students than just answering the teacher’s questions so that’s a lot nicer. As far as the new vocabulary, it might be a bit more harder to learn that because we still have to do the in class study of the vocabulary, and how to use it. But once we’re there it’s much better than thinking for twenty seconds what we are going to say, because we don’t have that time when we are going down through our scripts.

I. “So in a sense you have to think on your feet more?”

7M. “Yeah, yeah.”

I. “How much were you able to interact with other students in the role playing lesson?”

7M. “Really about the same thing as interacting with other humans. I’m not sure what the take or give money thing was about, but I think it played a role somewhere in the hotel scene. But you can talk, sit down and talk, run around, and fly. It was pretty cool.”

I. “What is the way that you typically interact in role playing activities in the regular German classroom, and how was the role-playing activity different?”

7M. “Normally we’re just sitting around in the classroom, and Frau will say something in German and we’re asked to translate into German and we’ll take the time to figure out what we’re going to say with the proper endings and prefixes on them and we’ll even write it down sometimes and it takes a while, and it’s pretty boring. But with the role-playing we can try to get more fluent in German instead of just more grammatically correct.”

I. “Was there anything that made you feel uncomfortable about doing the lesson in the virtual world?”

7M. “Not really, I’ve played virtual world games for a really long time now – not really heavily, but for somebody brand new to it, like Mrs. Simpson, she was probably a little uncomfortable getting orientated and everything, but I was pretty used to it.”

I. “Was there anything about doing the lesson in the virtual world that you liked better than doing the lesson in a regular classroom?”

7M. “Definitely, it was definitely more fun. There is a lot more interaction between everybody, instead of just one person and the teacher. Nobody could hide. There is

always everybody included in what you were doing so everybody had to do something. And some people had to do two people at once."

I. "What do you mean by that?"

7M. "We didn't always have enough people, so some of us had to do two people's roles."

I. "Were there any challenges that you found in doing the virtual world activity?"

7M. "Ah, staying on task." (laughs) "There was a lot to do in there, but it made it a lot more fun. It makes you want to go back to it instead of going back to the boring classroom. And there is other places so you can make your own scene and stuff - you could make your own scene and act it out. And so you could go out and make your own scene, go do it, no script or anything, and just talk as a group for ten minutes. That would be pretty cool."

I. "So you are thinking even doing an ad-lib lesson might be one thing to do?"

7M. "Yeah, exactly."

I. "What was it like speaking German out loud in this activity?"

7M. "I'm not exactly fluent in German, in the least, but talking German with other people, and having them talk back, it definitely helped a lot. Instead of being real choppy, and dissecting your sentences you can just keep on going, keep moving, and if you don't know a word, or how to phrase a word or two, you can just say it in English and move on, and the second time through somebody else will know it. Or, you can just look it up later if you want to…"

I. "Is there anything else about the role playing activity that you would like to discuss?"

7M. "Not really, all in all it was a pretty good thing."

7M - 2:

I. "How would you describe the virtual world activity that you did yesterday? Which one did you do?"

7M. "We did the campingplatz. It was a little different. I noticed that in a lot of the scripts it was supposed to be "walked out" and we were supposed to go to a place or something. I don't know if everybody is comfortable enough with online stuff so that we could go do that entirely without just standing there."

I. "You think some students had problems with finding locations?"

7M. “I’m comfortable with it, but most of the kids aren’t exactly extremely comfortable with it. So they can’t, like, coordinate their left hand moving to the button to speak, and their right hand moving them to see the map and clicking on the map. As far as just standing around talking, their fine with it, but maybe once like they’re in German IV and more fluent in it they will get used to the controls and walking around.”

I. “Do you think the people who have done gaming in the past are more able to multi-task in the virtual world?”

7M. “Yeah.”

I. “What did you feel like you learned from the lesson in the campingplatz?”

7M. “I don’t know how much I learned new, but it definitely reinforced what we had learned about camping and everything – we did an entire section on that. So it kind of reinforced what we already knew.’

I. “Were you able to interact with the other students in the lesson? How did that go?”

7M. “Yeah, It’s a lot nicer being able to do that.”

I. “What do you mean by “it’s a lot nicer?”

7M. “It’s less boring, as I said before. It’s not as monotonous. It’s not just raise your hand, get called on, and answer back. It’s a constant flow of everybody doing something and everybody listening to the person. Even if you’re not exactly thinking about what their saying, if they did it right, you’re subconsciously listening and if they say the wrong word you pick up on it, and you try to do it when you go through their part.”

I. “You kind of touched on this a bit already, but how would you compare it to the way you usually participate in the regular classroom?”

7M. “It definitely feels more like you’re in Germany or something, where you have to speak German, ‘cause most of the time if we don’t really know a word, if Frau’s not available, we can just put in the English word for it. But otherwise you are kind of forced to speak German. In class if we’re speaking, and we don’t know the word, we can say “What’s the word for… swimming pool, or field or something like that” But in there, especially if Frau’s not available, we have to think about it or look it up or something”

I. “Was there anything which made you feel uncomfortable about doing the lesson in the virtual world?”

7M. “Nah, I was kind of laughing at Frau’s avatar, but that’s about it. I’ve played other games like it before…”

I. “What other games that you’ve done would you compare it to?”

7M. “Oh, jeez, (laughs) like Runescape in 5th grade. Just like multi-world games there’s a world and different people can log on from different servers and it depends, there’s German servers for Runescape, there’s English servers it, there’s Spanish. This could probably be turned around for German students wanting to learn English. It’s probably like dropping into Germany to be on your own devices – you’ve got to speak it.”

I. “Was there anything about doing the lesson in this world that you like better than doing the lesson in the real classroom?”

7M. “Just the interaction. It was much more … normally I am just trying to stay awake in my classroom, but here everybody’s doing something. If someone else is talking you can mess with your appearance or something like that. There’s always something to do.”

I. “Any special challenges in doing the learning activity?”

7M. “For me it’s not too bad, but the moving around and talking and interacting – you got to be like a gamer to do that.”

I. “How was it speaking out loud for the activity?

7M. “I actually changed my settings, I can press the space bar and talked that way. I’d never used a mouse wheel to talk before, so that might make it a little easier. And, it wasn’t really hard talking in the world, but with so many people in the room I could hear Kyle talking right beside me to his group right beside me.”

I. “How did you find out how to change the voice to be controlled by the space bar?”

7M. “I went into “Preferences” to the settings – messing with the settings while other people were talking, so I set it up to be like my other games for talking.”

I. “Anything else you would like to share about the virtual world – other thoughts or opinions?”

7M. “It’s well put together, actually. I haven’t played that many virtual world games, but this one is pretty good. The stuff you can do on there is pretty neat.”

7M-3:

I. “Can you tell me what the last activity you did was?”

7M. “We did the train station, and it was just a normal day.”

I. “What did you think about that one compared to the other ones?”

7M. “It was about the same. It was scripted, and you have to walk through it. But by now they are a little more comfortable with doing it and talking.”

I. “How do you feel that the students are doing now that this is the third or fourth one that they have done?”

7M. “They are getting more comfortable at getting through their own problems and stuff. And if a mike isn’t working they’ll search around and see how to fix it instead of just raising their hand. They are a lot more comfortable with it.”

I. “Any final thoughts on the activity?”

7M. “It’s pretty good. It’s new, it’s something that gets you out of the classroom that gets really boring, and it kind of forces you to work in a different way. It’s a lot nicer.”

I. “Any ideas on ways this could be used in the future?”

7M. “Besides using it just as it is, maybe making your own script or going at it by yourselves – just going through “a day in Germany.”

I. “Almost like you’d be a tourist in the country?”

7M. “Yeah.”

8M - 1 (Only interview from this student who had schedule conflicts for the next two interview days):

I. “Can you think of several words that might describe the virtual world role-playing activity that you did yesterday?”

8M. “Entertaining, the opposite of boring, it was a lot better than sitting in class because we had something to do rather than just looking at a screen or listening to the teacher all day. Probably, fulfilling in a way, because I had expectations for it and they were met.”

I. “What did you feel like you learned from yesterday’s German lesson in the sim?”

8M. “I think we did a lot more work on verbal communication than we normally would when it’s written, or written before we speak it. This was kind of off the top of our heads. This was a lot more straight-forward and unprepared.”

I. “How would you compare it to similar lessons you’ve done in the regular classroom setting?”

8M. “Different – more involved for sure. We have opportunities in class to speak with our peers, but this was obviously one hundred percent with our peers.”

I. “How much did you interact with the students that were with you in the role playing activity?”

8M. “The entire time.”

I. “In what ways do you usually participate in the regular classroom? Was the virtual world activity different, and if so, why?”

8M. “Normally we go about with written lessons, book lessons and workbook packet lessons and those are talk with the teacher and individually answer or answered as a group (which is kind of a rarity.) This was obviously completely peer focused, so we were working classmates the entire time and we really didn’t have direction by the teacher – she was there to guide us if we needed help but we didn’t have her as a backbone for the activity.”

I. “Was there anything that made you feel uncomfortable about doing the lesson in the virtual world?”

8M. “No, not really.”

I. “Was there anything about doing this lesson in the virtual world that you liked better than doing similar lessons in the real classroom?”

8M. “I definitely enjoy it more because it added something else to focus on. It was less of just listening, and more application toward the goal that we were trying to do.”

I. “How would you describe the things that you focused on in this lesson?”

8M. “Probably a little less depth, and a little more surface, which I think is good because you need to work on the basics before you can apply larger scale stuff.”

I. “Were there any challenges you encountered in the learning activity? If so what were they?”

8M. “Before there were a few troubles with the log-ons, but yesterday it went one hundred percent smoothly. Everyone was able to speak, and everyone was able to focus and apply the lesson.”

I. “What was it like speaking German out loud in the lesson?”

8M. “For this activity, because we were talking to our friends it was a lot easier to talk to our friends than to an adult who is judging you. So we all had the same issues and we were able to share that in common and I think that made it a lot easier.”

I. “Is there anything about the virtual world activity that you would like to share with me?”

8M. “I think the creator did a really good job and I think it’s going to be able to be used for future applications.”

German IV:

9M - 1:

I. “Can you describe the role playing activity in the virtual world which you just completed?”

9M. “I thought it was pretty unique. I’ve never really played anything like it. I’ve played a lot of video games in my day, this is pretty remarkable.”

I. “What did you learn in the virtual world lesson that you completed?”

9M. “That speaking German is definitely the hardest part, and that learning any language is difficult, but I feel like in this environment it would be easier to learn and make mistakes, and learn from them rather than in the classroom.”

I. “How would you compare it to similar lessons which you’ve done in the real classroom?”

9M. “A lot easier. Not as much . . . I mean, you’re in a game environment, so it’s not like a test or anything like that.”

I. “How much did you interact with the other students in the sim?”

9M. “Like I was saying, I was familiar with the game, so I showed them how to do all the things I had discovered in the game. But as far as the dialogue was concerned we all just followed the script and it worked out pretty well.”

I. “In what ways do you usually participate in your German class in the real classroom, and was this role-playing activity different?”

9M. “I don’t participate that much in class, though I know the material. But in this environment I felt more comfortable in participating”

I. “Was there anything which made you uncomfortable about the virtual world activity?”

9M. “No, I actually thought it was better – it made me realize where I was at in speaking German because I didn’t do that much in class.”

I. “Were there any special challenges in doing the learning activity, if so please describe them.”

9M. “Maybe the area of effect that the voices have. We were across the street from another group, and you could still hear the voices, so maybe you can spread the activities out farther so people couldn’t hear each other and get distracted.”

I. “What was it like speaking German out loud in the activity, was it easy or hard and how would you describe it?”

9M. “Compared to Friday, this lesson was a lot easier. Doing it a second time made you pick up things which you didn’t get the first time.”

I. “Any other comments or information about the world you would like to share”

9M. “I think it’s pretty neat. I’ve never played anything like it. It could be a really big thing – this is where everything’s going – all the technology, people want to get involved that way. ..”

9M - 2:

I. “How would you describe the activity which you have been doing in the virtual world today?”

9M. “Being more familiar with it, it went a lot smoother. It’s better than the classroom for me.”

I. “Did you learn any new things from today’s German lesson?”

9M. “Mostly that a lot of German conversation, and any conversation, relies on verbs … if you don’t know the verbs you really can’t the point across, so that’s pretty much what you need to brush up on if you ever want to communicate.”

I. “Any new things you would like to say about how you would compare it to the real world classroom?”

9M. “It’s more direct instead of like in a huge group, in a small group it’s easier to get things across and learn, for me.”

I. “How was the interaction going with the students that were in the role-playing activity?”

9M. “Obviously we’re at different levels speaking, so some people don’t know how to say certain things. But being able to help them learn from their mistakes is good – it helped me too.”

I. “Is there anything that made you uncomfortable being in the world?”

9M. “Not really, speaking is difficult, but when you’re in an environment like this when it’s not really like talking with a native German seriously, you can make mistakes and be corrected and it will still be fine.”

I. “Any challenge in doing this specific activity?”

9M. “We were doing the restaurant today.”

I. “How does that compare to the other role-playing activities that you’ve done?”

9M. “It was a lot longer, but I also think I like this one better because there’s more lines, so you get more into it and look ahead, and read, because you don’t have a part for a while. You can get the idea of what you’re supposed to be saying.”

I. “How was it speaking out loud in this activity?”

9M. “It was very clear, so even though it was a different language you were still able to notice parts that you may not recognize if the quality was lessor which would kind of affect your speaking anyway – but it was really good, really enjoyable.”

I. “Any final comments or opinions you would like to share?”

9M. “For what it’s used for, for just the conversations, it’s great. Obviously there are still some chair glitches but that is no big deal. It was fun anyway.”

9M - 3:

I. “What activity did you do today?”

9M. “We did the restaurant again.”

I. “How would you describe doing it again, since you’ve done it before?”

9M. “It was a lot easier, we were more familiar with the dialogue. Knowing exactly, well, maybe not exactly, but knowing kind of what to expect that made the lines a lot easier to pick up on.”

I. “Do you think it would be worthwhile to do the role-playing simulation for a second class period a few days later or something like that?”

9M. “Yeah, that would be a big help.”

I. “Any final notes or thoughts on the learning activity in general?”

9M. “Really neat. When Frau mentioned this in the beginning of the year I didn’t know what to expect, but I’ve been really impressed.”

I. “Do you think this would be something of value for students of German?”

9M. “Definitely. It’s a lot different from being in the classroom, which I think you need in a foreign language. You need something to interact - it’s perfect.”

I. “Do you think it would be helpful if you could get real German students (from Germany) to interact with you in the sim?”

9M. “That would be pretty interesting, because then they could help and make corrections. Maybe they don’t speak exactly the way we learned it because they might have different dialects.”

I. “How do you think that would be different from doing it with a teacher?”

9M. “Well, learning it in America, different people evolve into teaching different things. They could be teaching what they know from ten, twenty years ago since they’ve been in Europe, but now it could all be different, so I think that would be good.”

10M - 1:

I. “Can you think of a few words that would describe the activity in the virtual world that you completed yesterday?”

10M. “Interesting, different, fun.”

I. “What would you say you learned from the lesson?”

10M. “I learned that whenever we go to Germany, I would have to think a lot quicker on words that I would want to say.”

I. “How would you compare it to lessons in the real classroom setting?”

10M. “I think it was a bit more hands on. You have to participate completely and not just watch other people.”

I. “How much did you interact with other students who participated with you in the role-playing lesson?”

10M. “I’d say a lot, because there wasn’t as many people there as there should have been.”

I. “What ways do you usually participate in your German class in the regular classroom, and how was this different?”

10M. “We usually are just answering questions and helping with group projects.”

I. “Was there anything which made you uncomfortable doing the lesson in the virtual world?”

10M. “No.”

I. “Were there any special challenges that you encountered in the virtual world? If so could you describe them?”

10M. “Having to come up with lines for it was a challenge.”

I. “Was it easy to speak German out loud for the activity, why or why not?”

10M. “It was somewhere in the middle, because you have to come up with lines and that’s not too bad.”

I. “Any information or opinions you would like to share with me about the virtual world activity?”

10M. “I think it’s definitely innovative. It helps teach actual lessons.”

10M - 2:

I. “Can you describe your virtual world role playing activity that you did yesterday?”

10M. “Yesterday we did the hotel, and I thought it was easier to be the director because it gives you a little bit more to work on.”

I. “What did you learn from yesterday’s lesson?”

10M. “It got easier coming up with the sentences on the spot and having to actually come up with the words. I think it’s getting a lot easier, even in the second lesson.”

I. “How do you compare doing it in the virtual world compared to doing it in the real classroom?”

10M. “I think it’s easier doing it in there because it’s usually just your peers, and you don’t have to worry about a teacher.”

I. “How did it go interacting with the other students in the role-playing activity?”

10M. “There were some things – like, if you right click on someone, you can pay them or something (laughs) I didn’t know what to do with that.”

I. “In what ways do you usually participate in the regular classroom, and how was this different?”

10M. “Usually I just sit back, and answer when I’m called on, but in that I actually had to participate in it and keep up with the outline for what we had to do and it was definitely different.”

I. “Any special challenges that you encountered in the learning activity?”

10M. “I still had to do some thinking on the words, but other than that, no.”

I. “What was it like speaking German out loud in this activity.”

10M. “It was definitely easier than the first one that we did . . .”

I. “What was easier about doing the hotel sim compared to doing the camping sim that you did before?”

10M. “I think it was because we already had a little bit of experience with it, that it made it that much easier to do.”

I. “Any opinions or aspects of the virtual world activity that you would like to discuss?”

10M. “I’ve noticed that you can’t actually ride the vehicles. You can get on them, but you can’t move. I thought that was interesting.”

I. “Do you think it would be better if they could put in more interactive features, like if you could drive the cars around?”

10M. “Yeah, you could actually apply the traffic rules that they have in Germany and getting around by car to an activity.”

10M - 3:

I. “Could you describe the last sim exercise that you did?”

10M. “We did the restaurant. It was interesting – the shop was interactive. You could actually change the sign out front to say if they were open or closed.”

I. “Could you compare things that you’ve done in the sim to things which you have done in video gaming?”

10M. “Well, it was pretty easy learning the controls and all that. It was actually really entertaining, compared to some games that I’ve played (laughs.) It made you have to pay attention to what other people said, and then you could use things that they said to respond.”

I. “Anything about the overall experience you would like to share?”

10M. “I think this is quite useful and if they could make it more interactive I think it would make it more fun to play. I think whenever something’s fun it’s easier to learn whereas if you’re sitting there getting the same old thing out of a textbook it’s kind of …boring, and you just fall asleep.”

I. “From your experience in gaming are there any ways you can think of to make it more interactive?”

10M. “Fixing the chairs so that they worked would be good. Sometimes you tried to slide them out, and they went up, or down!”

I. “How about doing a questing activity as part of a game?”

10M. “I think you could do that and it would add more to the activity. You could make up odd jobs for people that would help you learn vocabulary. Or like at the maze – you could have one person up top giving commands and the person in the maze would have to follow. That might work too.”

“You could also teach people how to learn directions. They could follow the directions and if their wrong come to a dead end and have to turn back and try to find the right way.”

I. “Any final thoughts on the sim activity?”

10M. “It’s a little laggy – but overall I think it works pretty good.”

11F - 1:

I. “Can you describe what it was like doing the activity in the virtual world?”

11F. “It’s fun to speak German, to speak more often with other people, so you can go around and have something to do and communicate with other people to do something. I think it’s just a way to get people to speak more.”

I. “Did you learn anything from today’s German lesson?”

11F. “I’m from Berlin, so … not really (laughs.) But I think the other people did. They had to read the lines and everything.”

I. “How would you compare what we did today to the real classroom setting?”

11F. “Maybe they get bored really fast and so they won’t pay attention the whole time and do something else. I think it’s a way to do more teaching.”

I. “Were you able to interact with the other students in the role playing lesson?”

11F. “Yes, I can talk with them, yeah.”

I. “In what ways do you usually participate in the German lesson in the real classroom?”

11F. “We usually don’t speak this much because I am listening to the teacher probably the whole time.”

I. “Did you feel uncomfortable doing the lesson in the virtual world?”

11F. “Not at all.”

I. “Was there anything about doing this lesson in the virtual world that you liked better than doing similar lessons in the real classroom?”

11F. “Yes, I liked that you are allowed to talk, are supposed to talk with the students and in the regular class you are just listening to the teacher. You can have a conversation and you can run around and do something with your friends.”

I. “Were there any problems or challenges that you encountered in the learning activity?”

11F. “Not for me, no.”

I. “Was it easy or difficult to peak out loud in German in this activity?”

11F. “No, because I speak it really good!”

I. “Any other comments about the role playing activity you would like to share?”

11F. “Yeah, I liked it better than a real classroom because you can meet your friends and talk to your friends. You want to do it more because you can be with your friends.”

11F - 2:

I. “How would you describe the virtual world activity that you did today?”

11F. “It was fun and I think we learned more – we learned more about it.”

I. “What activity did you do today?”

11F. “We did the restaurant.”

I. “How did you feel the other students did with learning the German in the lesson?’

11F. “They struggled a little bit. It helped that they have the vocabulary in the side so they can look it up.”

I. “How did what you did in the restaurant compare to other things that you’ve done in the virtual world?”

11F. “I think it’s more fun to be out there and more (able) to concentrate on the language.”

I. “Was it easy to interact with the other students in the virtual world?”

11F. “When you find them, then it’s easy, after the first time.”

I. “How is it different from what they usually do in the classroom to learn German?”

11F. “You can talk with your friends, and you are supposed to talk with your friends, which is different from the classroom.”

I. “Did you feel at all uncomfortable doing the lesson in the virtual world?”

11F. “No.”

I. “Do you like doing this activity better than some of the lessons in the regular classroom?”

11F “Yeah, I do, because I think it is more fun for everybody.”

I. “Were there any challenges in doing the virtual world activity for you?”

11F “Only in finding the people you are supposed to be with, where they are.”

I. “What did you think of the voice part of the activity, the sound …”

11F “It was perfect. I could hear them very well.”

I. “Did other groups talking cause any problems in hearing your activity?’

11F. “No, we couldn’t hear anyone else.”

I. “What do you think about this activity, in general?”

11F. “It helps you to learn. If you’re willing to learn, you can learn in a nice way.”

I. “Are the students picking up things quickly in this activity?”

L. “Some are – but not everybody.”

11F - 3:

I. “What scene did you guys do today?”

11F. “We did the restaurant again.”

I. “Was there anything different about doing it this time through?”

11F. “It was better this time, because we are getting used to it now.”

I. “What do you think of the whole activity overall?”

11F. “I think everybody learned a lot, more than what they actually do in class. They focused on the thing (the lesson.)”

I. “We have talked about bringing students in from Germany in to the sim sometime, what do you think about that?”

11F. “I think that is cool. They could come and the people that don’t really know the language they could come and help them. I think it would help the Americans who want to learn German, because you could have two or three persons there to correct them and help them.”

I. “Do you think it would be better with German students or with a German teacher?”

11F. “I think people are more comfortable with those who are their own age, who could be friends.”

I. “Anything else you would like to share about the sim as an activity?”

11F. “Not right now. I just like it.”

12F - 1:

I. “Can you think of some words to describe the virtual world activity which you completed?”

12F. “It was different, interesting, and it shook things up a bit from the traditional way of language learning.”

I. “What did you feel you learned from the lesson in the virtual world?”

12F. “Considering we’ve never really gone into the details of campgrounds, we got to to learn some of the words you would use if you went to a campground, like tent, campers, and so on.”

I. “How would you compare it to other lessons that you’ve done in the real classroom setting?”

12F. “It’s in a way easier, because it gives you . . . Frau’s there listening but at the same time you are talking among you’re classmates so you really aren’t worried about making a mistake, because it is only those people that are in your group that can hear you talking.”

I. “How much were you able to interact with the other students in the virtual world activity?”

12F. “I don’t know. We went through our lines a couple of times and did the roles.”

I. “In what ways do you usually participate in the regular classroom, and how was this different?”

12F. “In our regular classroom we go through and many times read like a story or we’ll read something with lines like that and then we’ll go back through it and Frau will ask us questions in class, and we’ll answer them according to what she asks us. This is kind of different going through as the person instead of just reading through.”

I. “Was there anything that made you uncomfortable in the lesson in the virtual world?”

12F. “No, though it was frustrating at times if you didn’t know the word – if you had forgotten one of the words you needed you’d think, “oh crap, what is that word!” But aside from that, nothing really.

I. “Was there anything about doing this activity in the virtual world that you like better than in a regular classroom?”

12F. “I like that it is more interactive. It had you right there paying attention to the lesson. You had to listen, because I think many times people who don’t want to participate will zone out and not participate. This forces them to participate so it’s nice because you get to interact with all your classmates instead of having the group that sits there silent all the time, and the group that always talks.”

I. “Were there any special challenges that you encountered in the learning activity? If so could you describe them?”

12F. “Just not knowing some of the words, and they’re not on the cheat sheet!” (laughs). It made you think of a different way to say something using words that you actually know. You have to manipulate it a bit to be able to say what you want to say.”

I. “What was it like speaking German out loud in the activity.”

12F. “I didn’t mind it. It wasn’t a problem for me.”

I. “Is there anything about the virtual world activity you would like to discuss or share with me?”

12F. “The only thing that’s tough about it is picking up the other peoples’ conversations around you. That gets a little bit confusing. If it’s coming through real softly you don’t notice but some you could pick through pretty loud and you could hear them.”

12F - 2:

I. “How would you describe the virtual world experience that you’ve been doing today?”

12F. “It’s a lot harder. The language is a lot more words that we don’t use every day, like words for certain foods and stuff.”

I. “What have new things have you learned from the German lesson you were working on today?”

12F. “It just gave us a refresher from when we learned how to order food.”

I. “How long has it been since you did that lesson?”

12F. “We learned it in German II, so it’s been a couple of years since we learned that vocabulary.”

I. “How did the interaction with the other students in the sim go?”

12F. “It’s a lot more choppy, you can tell it’s a lot harder. A lot of the stuff with the hotel and the other sim were words we used more recently. So this one was pretty choppy because it is not words we have used in some time.”

I. “How does it relate to things you would do in the regular classroom?”

12F. “It’s pretty similar. Frau would have us order food and pretend we’re doing the same sort of thing.”

I. “Anything that made you feel uncomfortable doing this in the virtual world?”

12F. “No.”

I. “Any special challenges in this particular learning activity? You’ve kind of touched on that with the discussion about the vocabulary.”

12F. “Nothing extremely challenging other than the vocabulary.”

I. “In terms of speaking out loud, how do you feel that’s going?”

12F. “I think that we’ve kind of adapted to it. In the beginning we were trying to say things word-for-word but we’ve sort of more gotten into the habit of saying “I don’t know how to say that, so it will be adjusted to this so I don’t have to wait a long time to think of what it is I’m supposed to say.”

I. “So you are adapting the way that you’re interacting in the language by getting used to doing it in these groups in the virtual world.”

12F. “Yeah, because you are doing it more like you would if you went to a foreign country and you didn’t know how to exactly say what you wanted to say you would modify it to something which you do know how to say.”

I. “Do you feel that this is helped with that process, so that if you did go to Germany this would be valuable?”

12F. “Yeah, I think it’s something that it would be good to do just a little bit of before you would go on a trip like that, because when we are talking with Frau we try to make it as correct as possible, and as close to what she wants it, but when you’re interacting like this it puts you in that kind of real-life situation where you really wouldn’t be able to sit there for ten minutes and try to think of what the heck you’re going to say. You have to hurry up on the spot and modify it to do the best you can.”

I. “Any other reflections that you have on this activity overall?”

12F. “There’s nothing wrong with it. I don’t think I’d want to do it all the time. But it’s a nice thing to mix up once in a while. It would be good if you did your traditional language stuff and once a nine-weeks come in towards the end and do different scenes of things that you’ve learned in that nine weeks. So you would do it as more of a thing to refresh you on what you’ve learned over the nine weeks, and give you time to put your listening and speaking skills to use.”

German Virtual World Project

der Empfang – reception desk/office
der Frühstücksraum – breakfast room
der Haartrockner – hair dryer
der Koffer, - suitcase
der Lift - elevator
der Unterschied, - e difference

die Badewanne, -n bath tub
die Dusche –n shower
die Klimaanlage – air conditioning
die Reservierung, -en reservation
die Tasche, -n bag
die Treppe, -n stairs
die Übernachtung – overnight stay

das Doppelbett, -en double bed
das Einzelbett – en single bed
das Esszimmer – dining room
das Doppelzimmer, - double room
das Einzelzimmer, - single room
das Gepäck - luggage
das Handgepäck - hand luggage
das Schwimmbad, - ¨er swimming pool
das Tuch, - ¨er towel

reservieren – to reserve
übernachten – to stay overnight

tragen (ä, hat getragen) to carry, wear

bar bezahlen – to pay cash
bequem - comfortable
eingeschlossen – included
frei - free
heavy - heavy
mit Kreditkarte – with credit card
müde – tired
im ersten Stock – on the second floor
in der Stadtmitte - downtown
in der Umgebung – in the vicinity

"das Hotel"

kostenlos im Internet surfen – free

Wifi im Zimmer – wifi in room

modern - modern
pro Nacht – per night

German Virtual World Project das Hotel
3-5 people (one hotel director, family of 2-4)

On way to hotel:

- One child/teen asks where they will be staying overnight
- Father anwers: in a small hotel in the downtown area of Plauderstein
- One child/teen asks how far it is – he/she is tired
- Mother sees hotel ahead, and tells where, using directions

Family enters hotel

- One child/teen comments on how hotel looks
- Director greets family, and asks if he/she can help
- Father says they would like two rooms: one with a double bed, one with two single beds
- Director asks if they would like rooms with a shower and tub, or without
- Mother asks what the difference is
- Director says a room with shower/bath costs €80 per night, and without costs € 55
- Mother says she definitely wants rooms with a shower and tub
- One child asks if there is a pool
- Director answers yes, it is outside to the left of the hotel
- Another child/teen asks if there is a room with games
- Director answers no, he's sorry, but they don't have a game room
- Mother asks how much everything will cost.
- Director asks how many nights they will be staying
- Father says 3: Tuesday, Wednesday and Thursday. They'll be leaving Friday morning
- Director says they must leave by 11:00 a.m. Three nights with two rooms with bath and shower will cost €480. He asks if they will be paying cash or with credit card
- Father answers with cash. Hands him 4 100 Euro bills
- Director gives him back €20 and thanks family. They have rooms 232 and 233
- Mother asks where rooms are.
- Director tells her they are on the second floor, to the left of the elevator
- One teen asks if they are taking the elevator, because he/she doesn't want to carry suitcase
- Father says yes, of course. Everyone must carry their own suitcases and hand luggage
- Another child asks father if he can carry her luggage for her – it's too heavy
- Father says no, she can carry it.
- Director wishes them a pleasant stay
- Mother thanks him, and says the hotel seems very nice.
-

German Virtual World Project "das Restaurant"

der Hamburger, -
der Kaffee – coffee
der Kellner – waiter
der Kuchen – single layer cake
der Salat, -en salad
der Schweinebraten – roast pork
der Vegetarier, - vegetarian

die Apotheke, -n pharmacy
die Auswahl – selection
die Bratkartoffel, -n fried potatoes
die Cola – cola
die Gemüsesuppe –vegetable soup
die Fanta – orange/lemon pop

die Kellnerin, -nen waitress
die Landkarte, -n map
die Leute (pl) people
die Limonade – lemonade/soft drink
die Pommes frites French fries
die Rechnung, -en check/bill
die Speisekarte, -n menu
die Tasse, -n cup
die Tomatensuppe, -n
die Torte, - n multi-layer cake

das Bier – e beer
das Brötchen,- hard roll
das Fleisch - meat
das Getränk –e drink/beverage
das Glas, -¨er glass
das Schokoeis – chocolate ice cream
das Spezi – cola with orange pop
das Stück – piece
das Trinkgeld – tip
das Wasser - water

bald - soon
bitte schön – may I help you?
am Fenster – at the window
an der Ecke – on the corner
Durst haben –to be thirsty
Hunger haben – to be hungry
einen Moment – just a moment
früh - early
in der Ecke – in the corner
zum Nachtisch – for dessert

geradeaus – straight ahead
nach links – to the left
nach rechts – to the right

bestellen – to order
bezahlen – to pay
schmecken – to taste

bekommen – to get/receive
gefallen – to be pleasing
helfen – to help

German Virtual World Project das Restaurant

Family of 3-5 is on vacation in Plauderstein. They are looking for a restaurant to have dinner. There is only one waiter/waitress working.

On way to restaurant:

Teen 1: Says he/she is hungry.
Teen 2: Says he/she is also hungry.
Teen 3: Asks where they are going to eat.
Mom: Says she heard that the "Schnitzelhaus" is really good.
Teen 1: Asks if she knows where it is.
Dad: Says no, but there is a map ahead. They can look there.

All go to map.

Teen 2: Points it out on map, saying "there it is". We just have to …… (gives directions)
Teen 3: Says he/she doesn't like Wiener Schnitzel
Dad: Says they will have a bigger selection that just Wiener Schnitzel
Mom: Sees Restaurant up ahead and says "there it is."

Enter Restaurant

Teen 1: Says he wants to sit in the corner at the window
Teen 2: Says he doesn't see many other people there.
Dad: Says it's only 5:00 in the evening. It's early to eat in Germany
Mom: Let's go sit at the table in the corner. We can see the water from there.

Family sits down. Waiter/waitress arrives

Waiter: May I help you, please?
Dad: Could we have __#__ menus, please?
Waiter: Yes, just one moment, please.

Waiter returns

Waiter: Here are the menus. What would you like to drink?
Mom: I would like a glass of Lemonade, please.
Dad: And I would like a beer, please.
Teen 1: Bring me a cola, please.
Teen 2: I want a Spezi, please.
Teen 3: And bring me a Fanta.

Waiter: OK, I'll be right back.

German Virtual World Project: "die Campingplatz"

der Ausflug, - ¨e field trip, excursion
der Campingplatz, - ¨e campground
der Direktor, -en
der Empfang – reception
der/die Erwachsene - adult
der Kocher, - gas cooker
der Laden, - ¨ store, shop
der Rucksack, - ¨e back pack
der Schlafsack, - ¨e sleeping bag
der Wohnwagen, - RV

die Dusche, -n - shower
die Lebensmittel - groceries
die Luftmatratze, -n air mattress
die Mahlzeit, -en - meal
die Reservierung, -en reservation
die Rezeption – reception desk/office
die Sporttasche, -n gym bag
die Tasche, -n bag
die Übernachten – the overnight stay
die Webseite, -n web page

das Büro, -s office
das Feuer, - fire
das Schwimmbecken, - swimming pool
das Zelt, -e tent

auf der linken Seite – on the left
auf der rechten Seite - on right
geradeaus - straight ahead
geschlossen – closed
im Schatten – in the shade
in der Sonne – in the sun
nach links – to the left
nach rechts – to the right
nass – wet
pro Person - per person
sicher – sure, certain
sonnig - sunny
trocken - dry

aus/packen – to unpack
bezahlen – to pay
bleiben – to stay, remain
brauchen – to need
campen = to camp
campen gehen
dauern – to last, to take (time)
ein/richten – to set up (like tent)
kochen – to cook
packen – to pack
regnen - to rain
reservieren – to reserve
übernachten – to stay overnight
zelten – to camp in a tent
zu/bereiten – to prepare a meal

schlafen (ä, hat geschlafen) to sleep
tragen (ä, hat getragen) to carry,wear

Plauderstein Campingplatz Szene:
4-5 people (1 campground director, 3-4 friends, high school aged)

Anfang: Teens walking down street in Plauderstein on way to campground.
General conversation, including, but not limited to:

- Complaining about long drive from home to campground
- Discussing how long it took (4 hours, 20 minutes)
- Glad they're finally here in Plauderstein
- Asking where the campground is, if anyone knows for sure
- One person sees map, all look at it
- Another person states the directions from map to campground
- Discuss weather – hope it doesn't rain – no fun camping in rain
- One person saw weather report – supposed to be sunny & warm

Ankunft: Someone points out office

- Someone else says they hope it is not closed
- Someone says the the website said it was open from 8 a.m. until 10 p.m.
- Director greets them at campground office desk, welcomes group to campground
- Director asks if they have reservations
- One person says "no", and asks if that is a problem
- Director says no, and asks how many are in their group (how many adults and how many teens)
- One teen replies
- Director asks if they have tents or an RV
- One teen tells him they have 2 tents
- Director tells them they can have space (Platz) 15, which is right around the corner from the office, in the vicinity of a small grocery store/supermarket
- One teen asks if it is OK to have a campfire
- Director answers no, campfires are permitted.
- Another teen says that is not a problem, because they brought along a gas cooker
- Director ask how many nights they will be staying
- A teen answers two – Friday night and Saturday night
- Another teen asks the cost of the overnight stay
- The director answers €12 per night per person
- Another teen asks if there is a swimming pool
- Director answers it is behind the office. They may swim until it gets dark. Then the pool is closed
- A teen says he forgot his/her air mattress
- Director tells him/her that he/she can buy one in the camp store
- Teens pay for the weekend, thank the director.
- Director wishes them a pleasant stay

German Virtual World Project "der Bahnhof"

Family of 3-5 walking to train station, to purchase tickets for a trip from Plauderstein to Hamburg, to visit a sick grandmother who has just been hospitalized. It is Monday morning, and you want the first available train, with the least number of changes.

While walking to train station:

Mom: Says she doesn't know why they cannot take the car to Hamburg.

Dad: Explains that the car's motor is broken down, and he doesn't have time to repair it.

Teen 1: Asks how long it takes by train compared to by car

Dad: Answers that they will see when they get to the train station

Teen 2: Says he doesn't understand why they (the kids) have to go along

Teen 3: Says he had plans to play Video games with his friends that afternoon.

Mom: Says because their grandmother is very sick, and needs them

Enter train station:

Teen 1: Exclaims how big the train station is

Dad: Ask if this is their first time in the train station.

Teen 2: Answers yes, they always take the car

Mom: Says that they should enjoy the train ride because there is so much more room

Teen 3: Says he needs to use the restroom.

Dad: Points out where restroom is and tells teen 3 to hurry up. Teen 3 leaves for a minute

At the ticket counter:

Official: greets family

Family: says hello

Official: Asks how he can help them

Dad: Says they need 3/4/5 tickets to Hamburg

Official: Asks when they want to travel

Mom: Says as soon as possible

Official: Says there is a train that leaves at 8:45.

Dad: Asks how many times they would have to transfer

Official: Says 2 times

Mom: asks if there is a more direct train – they have to hurry to Hamburg, because her Mother is very sick in the hospital

While official is looking at schedule:

Teen 2: Says he forgot his iPod

Mom: Says Teen 2 can borrow his brother's/sister's

Teen 2: Says he wants his own iPod, with his own favorite music

Teen 1: Says he wants to listen to his iPod, that his brother/sister cannot have his

Mom: Tells both kids to calm down/take it easy

Official: Says there is a Regional Train that leaves Plauderstein at 9:31, with only one transfer, which is in Braunschweig

Mom: Asks when train will arrive in Hamburg

Official: Says at 11:30

Teen 3: Says that the trip will be two hours long

Mom: Tells Dad that she wants to take the train that leaves at 9:31

Dad: Tells official that they will take __#__ tickets for the 9:31 train to Hamburg

Official: Asks if they want to travel first or second class

Teen 1: Asks if they can travel first class, because it is their first train trip

Dad: Asks official how much a first class ticket would cost.

Official asks how old each teen is

Teen 1: Tells age - 15

Teen 2: Tells age – 17

Teen 3: Tells age - 19

Official: Official says first class tickets for adults are 52 Euros. For children under age 16, they are 45 Euros each

Mom: Says no, that is too expensive. They will take second class. How much are they?

Official: Says 27 Euros, and 22 for children under 16.

Teen 1: Says he thinks first class would be better.

Official: Asks them if they have a lot of luggage.

Mom: Answers just three suitcases and a few smaller bags.

Official: says there will be enough room in their compartment

Teen 2: Asks if they can get a luggage cart. They cost only one Euro.

Dad: Says OK, go get one.

Official: Asks if they will be paying cash or with a credit card

Dad: Tells official he is paying with a credit card

Official: Says it will come to 125 Euros altogether.

Teen 3: Asks how long they will have to wait for the train

Dad: Asks what time it is.

Teen 1: Tells him it is 8:10.

Dad: You'll have to wait one hour and 20 minutes.

Mom: Tells kids that there is a book store around the corner – they can go buy themselves a book to read

Teen 2: Says he'd rather listen to his iPod which is at home

Official wishes them all a pleasant trip

All : Say good-bye