Exploring the experiences of adolescent students attending a virtual school

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EXPLORING THE EXPERIENCES OF ADOLESCENT STUDENTS
ATTENDING A VIRTUAL SCHOOL

An Abstract of a Dissertation
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

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ABSTRACT

In the past 20 years distance education has evolved rapidly. The accessibility to online learning or virtual schools has become a viable option for many students. Virtual schools offer students instructional flexibility regarding time, place, and pace.

Improvements in distance education fostered rapid growth of online learning. The number of online learners grew nearly ten-fold from 2001 to 2015 (Clark, 2001; Watson et al., 2015). However, Watson (2016) estimated only 10% of online learners represented full-time virtual school students. Although face-to-face instruction is preferred by most K-12 learners, some learners argued their needs were best met by virtual schools (Green, 2013; Kenyon, 2007; Nehr, 2009; Pleau, 2012; Rice, 2006).

Little is known about the lived experiences of public virtual school students. The obscure nature of virtual schools may be related to the private home-based settings and having significantly fewer enrollments compared to supplemental online programs and traditional schools.

The purpose of this study was to explore the personal meanings and motivational aspects of being an adolescent middle school student in a particular virtual school. Two phenomenological methods were administered. First, the Descriptive Phenomenological Method in Psychology (Giorgi, 2009) revealed 10 commons essences of being a virtual student in a particular virtual school. Three descriptive themes related to (1) the mutual needs of family members, (2) teacher-directed learning with parental assistance, and (3) selective socialization. The descriptive study led to personal meanings expressed in psychological terms. Secondly, Interpretive Phenomenological Analysis (Smith et al.,
2012) was administered to interpret satisfactions and dissatisfactions of the five adolescent virtual student participants. A single theme emerged from the interpretive study relating to student freedoms, guided choices and a sense of self-control. Self-determination theory was applied to 10 randomly selected experiences to provide further insight into the motivation of each participant. The support for autonomy, competence, and relatedness was identified along with the students’ levels of self-regulation.

The detailed and rich descriptions of lived experiences and self-regulation capabilities were expected to improve the readers understanding of virtual school preference for a small number of adolescent students and their parents.
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DEDICATION

This dissertation is dedicated to my family for their support and patience over several years during my doctoral program. I especially wish to thank my spouse Sheryl for her support in editing my manuscripts. We have been fortunate to be educators and life-long learners together, for which I am grateful. I am also thankful for our son Matthew who reminds us to enjoy the simple things in life, especially togetherness. I am grateful for my daughter Kimberly who is following the footsteps of her parents in academia. Kimberly’s combined talents for academic research and journalism expertise is a source of great pride.

And finally, I wish to dedicate this dissertation to the past, present, and future public virtual school students and their families.
ACKNOWLEDGEMENTS

I wish to acknowledge my sincere appreciation for past and current committee members over my long journey. First, thank you to Dr. Robert Decker (retired) for his support and patience during the early years of selecting a researchable dissertation topic with staying power. I remained passionate about my topic from start to finish. Secondly, I wish to thank Dr. Mary Herring (retired) for her support and suggestions in completing my dissertation proposal. I sincerely appreciate my current committee members Dr. Victoria Robinson, Dr. Benjamin Forsythe, Dr. Leigh Zeitz, and Dr. Radhi Al-Mabuk as committee chairperson. I am especially grateful to Dr. Radhi Al-Mabuk for volunteering to chair my committee after two retirements and one professional advancement among my committee members. All of the committee members have spent hours challenging and supporting me to meet the highest standards of dissertation research.

I acknowledge the value the interaction of my instructors, cohort members, and classmates over many years. I was fortunate to be exposed to cultures from many countries which enriched my life immensely.

And finally, I wish to thank the virtual school administration, student participants and their parents for allowing me to learn about the experiences of adolescents in their virtual school. There is no doubt in my mind that the virtual school participants will live up to their potential and become excellent community members and citizens as adults. It was my privilege to interview the participants at 11 and 12 years of age.
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CHAPTER I

INTRODUCTION

This phenomenological study explored the personal meaning of five adolescent students attending a district-operated statewide virtual school. The virtual school became a new public school choice option in the fall of 2012. Prior school choice options in the state included traditional accredited public schools, accredited and non-accredited private schools, and competent private instruction (i.e., homeschool). The public virtual school was among the first of its kind in the state where it resides. Few students attending the virtual school have prior experience with virtual schools or online education. The virtual school site is located in the north, west-central portion of the United States.

The problem in this study was a lack of understanding. Little was known about why students were attracted to the virtual school, reasons for returning to the virtual school, and how the virtual school met their needs.

The main contributions of this study were twofold, first a phenomenological description of virtual student experiences was documented. Secondly, an interpretive analysis described how basic student needs were met for autonomy, competence, and relatedness through the lens of self-determination theory.

The exploration of first-hand experience and how basic student needs were met provided insight about the virtual school choice option available to students and parents. The results were intended to satisfy the curiosity people might have about lived experiences of virtual school students as described by the *experiencers* themselves and
guided by two scientific phenomenological qualitative methods and the application of a specific motivational theory.

Unlike traditional schools, virtual students learn at a distance from their teachers and classmates. The virtual school study setting features curriculum materials sent to the students’ homes, integrated learning management system, virtual classrooms, interactive web-based resources, and a secure email system connected to computers by means of the Internet. Teachers deliver instruction to students synchronously and asynchronously. Instruction is individualized with flexibility to complete lessons at an accelerated pace or take more time if needed. Advancement within the curriculum is competency-based, meaning students should not advance to the next lesson without meeting a minimum standard of performance established by the virtual teacher. Teachers communicate regularly with home-based learning coaches (e.g., parents or the parent’s designees) during grades K-8. Special needs students receive specially designed instruction and accommodations online or face-to-face with contracted services. Virtual students participate in physical education, fine arts, and music under the direct and indirect instruction provided by highly qualified (i.e., state licensed) virtual teachers. Although the typical place of learning is the student’s home setting, learning may be augmented in community settings (i.e., local guitar lessons, dance studio, horseback riding, etc.) and optional statewide field trips hosted by the virtual school. The virtual school study setting offers secondary students vocational programs including business education, family consumer science, and information technology.
There are many similarities between the virtual school study setting and traditional public schools. Most notably, the state’s accreditation rules and local school board policies apply to the virtual school in the same way they apply to traditional schools. Students are expected to use the state’s core curriculum, receive instruction from highly qualified teachers, and participate in statewide assessments. The required amount of instructional time is the same for virtual school students compared to traditional school students. A major difference between the virtual school study setting and traditional schools is the accounting of instructional time. Traditional schools log physical attendance of students as the indicator of instructional time, sometimes referred to as seat time. In contrast, instructional time in the virtual school is determined by schoolwork completion metrics. School lessons are assigned an average time for completion and logged on the student’s learning management system. The metrics alert the student and virtual teacher when the completion rate was below expected completion levels. Like traditional schools, students learn by reading books and anthologies, completing daily assignments, experiencing hands-on projects and are assessed for learning on a regular basis. Students in both settings have the opportunity to participate in clubs, attend social functions, and field trips. Virtual school students have access to the district’s curricular programs, extracurricular activities, and student services, although these opportunities may not be practical due to geographic limitations.
Background of the Study

The evolution of virtual schools emerged from three generations of technology (Matheos & Archer, 2004; Whiting, 2013). The first generation was slow asynchronous correspondence-like courses using the postal mail system. The second generation was characterized as teleconferencing. Students interacted synchronously with the teacher using audio or video conferencing. The third generation of distance technology featured fast asynchronous communication between computers connected to the Internet. High-speed Internet allowed multiple users to hold online forums, chat sessions, and rapidly exchange data. “The third generation spawned rapid growth in virtual education, rivaling face-to-face instruction” (Matheos & Archer, 2004, p. 3).

The federal government has been interested in expanding student access to virtual schools for many years. “Most of the federal initiatives focused on science, medicine and agriculture education” (Shrum, 2004, p. 83). The Telecommunications Act of 1996 increased access to both telecommunications and advanced high-speed Internet for all consumers, rural, insular, and low income… [and] created E-rate for increasing high speed Internet access to the nation’s schools, libraries, and health care facilities (Universal Service 2014, para. 2). The Virtual High School Global Consortium, otherwise known as VHS, was created through a five-year $7.4 million federal grant in 1997 (Barbour & Reeves, 2009; Shrum, 2004). During the same year, the federal government created the Advanced Distributed Learning Initiative (ADL). “The aim of the ADL was facilitation of common standards, lower development costs, promote widespread collaboration that satisfy common needs; and make learning software
accessible, interpretable, durable, reusable, adaptable, and affordable” (Harper, Chen, & Yen 2004, p. 589). In 2001, the Internet Equity and Education Act created regulations for distance education and incentives. “One of the tasks of the Act was to amend Higher Education Act of 1965 to offer opportunities for higher education through online and telecommunications devices” (Harper et al., 2004, p. 590).

Like the federal government, many states supported online learning initiatives since the turn of the 21st century. Watson, Winograd, and Kalmon (2004), identified 11 states with laws and regulation specifically developed to guide the potential growth of online learning; California, Colorado, Florida, Idaho, Illinois, Michigan, Minnesota, Ohio, Pennsylvania, Texas and Wisconsin. The Florida Virtual School (FLVS) was among the first virtual schools initiated in 1997 with a $200,000 grant from the state legislature. According to researchers Watson et al. (2004), Florida piloted a K-8 full-time virtual school in 2003 with a 1000 student enrollment cap. The Florida virtual school experienced rapid growth. Watson, Murin, Vashaw, Gemin, and Rapp (2013) claim, FLVS is the largest state-operated virtual school in the United States serving “410,962 supplemental course enrollments and 5,366 fully online students in 2012-2013” (p. 82). The large majority of students enrolled in FLVS were part-time high school students taking one or more courses online.

The state where the virtual school resides has a history of supporting online supplemental courses for students. The state education agency, a large university, and community colleges have hosted online programs with different missions. The missions and aims for these three online programs are described next.
First, the state agency initiated a supplemental online program since 2004. The agency’s focus is to supplement rather than supplant school offerings. The aim is to offer online courses for students needing hard-to-find courses, resolve scheduling conflicts, serve students unable to attend the traditional classroom, and recovery of credits needed for graduation.

Secondly, the large university program has operated since 2001 and specifically aims to serve high achievers such as gifted and talented students. Qualifying students may take college courses and accelerate their education. Online AP courses and exams are also available at the university.

The third state program includes community college programs offering online courses since 2001. These courses offer students college credit, and in some cases high school credit, otherwise known as dual credit courses. Dual credit (i.e., simultaneous earning of college credits and high school credit) is limited to avoid competing with local high school courses. In 2007, a community college offered a supplemental high school credit program for students primarily aimed at credit recovery, high school completion, and college preparedness. Next is a description of two district-operated statewide virtual schools introduced to the state in 2012.

Two full-time virtual schools were introduced in the fall of 2012. The virtual schools differ from the state’s three supplemental program in profound ways. The online offerings from the state education agency, university, and community colleges are programs rather than schools. The program offerings are supplemental, meaning the students are enrolled in traditional physical school settings where most of their education
is being delivered through traditional methods. The state’s online programs are not offered to supplant existing traditional courses with online courses. In some cases, students may supplant traditional course offerings with approval from school administrators based on extraordinary needs. However, supplanting existing courses is typically discouraged by high school administrators to maintain student numbers, support teachers, and avoid additional expenses to the traditional school. Unlike the virtual schools, the state’s three online programs primarily serve students in grades 9-12. With the exception of the university program, which accepts eligible students (e.g., gifted and talented students) beginning in grade 6.

In contrast to the online programs offered in the state, the virtual school completely supplants the traditional schools by means of full-time enrollment. Students and their parents may choose to enroll in the virtual school without the need for approval from their local school administrators. The virtual school study setting offers full-time enrollments in grades K-12. Unlike the state’s supplemental online programs, the virtual school offers assistance to families needing computers and peripheral equipment on a case-by-case basis. In addition to offering computer equipment, an Internet subsidy is offered to low income families.

The virtual school study setting is relatively new compared to the early adoption of full-time virtual schools in other states. As such, the arrival of the state’s two new virtual schools has drawn considerable attention from the state’s legislature and state education agency. The attention has little to do with psychological needs of students attending the virtual school. Rather, a critical review of the virtual school has focused on
meeting accreditation requirements, open enrollment issues, use of state funds, quality of
education, and ontological debates about school context and place. Although these
macro-level discussions are appropriate and should be publicly debated, this research
study has a micro-level approach. More specifically, five students were asked an
overarching question, “How do virtual school experiences meet your needs?”

Statement of the Problem

At the beginning of the 2012-2013 school year, a new public virtual school
located in the north, west-central U.S. enrolled 74 students in grades K-6 and ended the
academic year with 61 students. Fifty-two (52) of the students in the maiden class
returned for consecutive enrollment the following school year, an 85% return rate. Four
years later, the virtual school’s beginning enrollment was 305 students in grades K-12.
By the end of the fourth year of operation, 263 students completed the academic year.
One hundred ninety-two (192) of the beginning year enrollees were enrolled from the
prior school year, a return rate of 73%. Despite the attrition of students (i.e., non-
returning students), the virtual school nearly quadrupled its enrollment in four years.

Based on the enrollment data, some of the virtual students continued to enroll in
the virtual school for consecutive years while others opted out and returned to traditional
school options. In most cases, students leaving the virtual school return to their prior
school placements if the virtual school was not what they expected. This type of student
attrition usually occurred in the first nine weeks of school according the virtual school’s
lead administrator.
The enrollment data suggests the virtual school is a preferred option for some students while others opt to return to a different school choice option. Why does the virtual school meet the ongoing needs of some students, but not all students? This question provided a sense of puzzlement and curiosity for the researcher. As mentioned earlier, the problem in this study is a lack of understanding. Little is known about why students are attracted to the virtual school, reasons for returning to the virtual school, and how the virtual school meets their basic needs.

**Purpose of the Study**

Little is known about the experiences of public virtual school students. The obscure nature of virtual schools may be related to the private home-based settings, the minuscule number of full-time virtual students compared to traditional students, and the shorter history of virtual schools compared to traditional schools. Although virtual schools are somewhat invisible to the public, a major goal of education applies to virtual school students in the same way it applies to other formal education systems. According to Bandura (1993), “A major goal of formal education should be to equip students with the intellectual tools, self-beliefs, and self-regulatory capabilities to educate themselves throughout their lifetime” (p. 136). Adopting Bandura’s educational goal served to delineate this study and refine its purpose. The purpose of this study was to explore the personal meanings and motivational aspects of being a virtual school student in a particular virtual school. The personal meanings were expressed in psychological terms, while the motivational factors explored self-regulation of behavior. The detailed and rich
descriptions of lived experiences were expected to improve the readers understanding of virtual school preference for a small number of adolescent students.

Research Questions

This study seeks to gain a deep understanding of the lived experiences of a small number of adolescent virtual school students. The research questions were designed to uncover the real-life stories of adolescent students in a rare and unique educational setting. A phenomenological approach was used to avoid judging experiences that are not lived through, but only observed by others. The overarching question was, “How do virtual school experiences meet the needs of students?” The topic was further designed to expose the psychological meaning of a major life function, the ability to learn. From a theoretical standpoint, the researcher sought to understand the motivational factors that structure behavior for learning. The following research questions were synthesized from the overarching question:

1. What attracts (some) students to virtual schools?
2. Why do students continue attending or return to virtual schools?
3. What are some examples of experiences students have in virtual schools?
4. What are some examples of student satisfaction in a virtual school setting?
5. What are some examples of student dissatisfaction or frustration in a virtual school setting?

The research questions were further shaped into semi-structured interview questions and two pre-interview activities to promote discourse during the interviews.
The interview transcripts were analyzed using Descriptive Phenomenological Method in Psychology (Giorgi, 2009) and Interpretive Phenomenological Analysis (Smith, Flowers & Larkin, 2012). Interpretive Phenomenological Analysis (IPA) was applied to self-determination theory (Deci & Ryan, 2000), which relates to self-regulation and meeting basic psychological needs for competence, autonomy, and relatedness.

**Limitations**

The use of the descriptive phenomenological method (Giorgi, 2009) seeks common structures of experience from a small number of participants. Only a few participants are needed to identify the phenomenon of interest. The number of participants must be manageable due to the large volume of text data to be analyzed. Data analysis is a time-consuming process to extract meanings and transform each meaning into psychologically sensitive statements. Therefore, the number of participants was limited to avoid being overwhelmed by the volume of data. Another limitation is the generalization of findings to other virtual students. Although the description of virtual school experience may be shared among the research participants, generalization outside of the study is not recommended, as the contextual factors are likely to be different in each new setting. Rather than generalization, the rich details of virtual student experience may help others understand the personal meanings from the first person perspective of each study participant.

**Delimitations**

The findings of this study were descriptive and interpretive using two different methods in phenomenology. The descriptive phenomenological method was used to
identify common essences of virtual school experiences, which belong to the phenomenon. The interpretive phenomenological method was used to determine how the participants were motivated in the virtual school setting, whereas; the results belong to the individuals rather than the phenomenon. Hence, the descriptive phenomenological approach sought to determine the essence of being a virtual school student represented by all of the research participants, which were guided by research questions 1-3 of this study. A major requirement in the descriptive approach was to set-aside presuppositions and precisely describe what was given by the participant. Conversely, the interpretive phenomenological approach examined individual accounts of experience guided by theory. In this study, the application of self-determination theory was guided by research questions 4-5.

In summary, the application of self-determination theory was bracketed (i.e., set-aside) when using the descriptive phenomenological approach, guided by research questions 1-3. The last two research questions 4-5 were analyzed using an interpretive phenomenological approach. This latter approach was a sensitive interrogation of student motivation guided by self-determination theory. The results of both phenomenological methods were traceable to the original excerpts from interview transcripts.

Another delimitation is the latent influences of adults within close proximity of each participant. The research does not account for the influence of teachers, administrators, parents, and other adults except when given in the interview transcripts or voluntarily shared by the parent. The influence of these powerful others may be hidden
from the researcher or shared freely during the interviews as being significant to the participants’ responses.

**Definition of Terms**

The definitions below are taken directly from Watson, Pape, Murin, Gemin, and Vashaw (2014, p. 176) except where cited otherwise.

**Asynchronous**: Not occurring at the same time. Most K-12 online education programs are primarily asynchronous, allowing students and teachers to participate according to their schedule. Communication and interaction take place via email or discussion boards (Watson & Ryan, 2007, p. 32).

**Course enrollments**: One student in a single semester long course are used to count student numbers in supplemental programs.

**Fully online schools**: Sometimes called cyber schools and virtual schools, work with students who are enrolled primarily (often only) in the online school. Online schools typically are responsible for ensuring their students take state assessments, and for their students’ scores on those assessments.

**Online learning**: Teacher-led education that takes place over the Internet, with the teacher and student separated geographically, using an online instructional delivery system. It may be accessed from multiple settings (in school and/or out of school buildings).

**Programs**: Online services working directly with students but are not a “school.” May include consortia, alternative education initiatives that don’t qualify as a
school, some state virtual schools, and course choice initiatives that coordinate offerings for students from multiple providers.

**Single-district and multi-district programs:** Online programs that serve students who reside within the district(s) providing the online courses. Single-district and multi-districts programs may serve students outside of their district(s) if permitted by state policy.

**State virtual schools:** Typically created by legislation or by a state-level agency, and/or administered by a state education agency, and/or receive state appropriation or grant funding for the purpose of providing online learning opportunities across the state. They also may charge course fees to help cover costs.

**Student enrollments:** Defined as one yearlong full-time equivalent (FTE) student used to count student numbers in fully online schools and blended schools.

**Supplemental online programs:** Online courses for students who are enrolled in a school separate from the online program. Some states refer to these as part-time programs.

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**Disclosure Statement**

The researcher served as the superintendent of the school district hosting the virtual school in this study. The relationship began with the introduction of the virtual school in the fall of 2012. The researcher retired from the school district on June 30, 2015. Hence, the researcher was familiar with virtual school, the leadership structure of the school, and many of the related policies and procedures. However, the researcher
does not have any relationship of employment or advisement since retirement. The researcher served as commencement speaker for the virtual school class of 2016. The former close relationship with the virtual school was an advantage and disadvantage to the researcher as principal investigator. An advantage was the intimate knowledge of the school and its operations. A disadvantage was the constant bracketing of preconceived experiences and ideas while conducting phenomenological research. Nevertheless, the researcher was comforted in knowledge of being separated from former employment relationships with the school. Lastly, the researcher did not have any former relationships with the students and parents selected for this study.

**Overview of the Study**

This phenomenological case study was organized into five chapters. Chapter I included the introduction, background of the study, statement of the problem, purpose of the study, research questions, limitations, delimitations, definition of terms, and disclosure statement.

Chapter II was an investigation of current literature about the development and use of distance education technologies, development of online learning for grades K-12, research about K-12 online learners, quality components of virtual schools, research about the experiences of virtual students, the application of self-determination theory to this study, and issues facing adolescent online learners.

Chapter III discussed the research design, which included descriptive and interpretive phenomenological methods, how the methods were implemented, concepts in phenomenology, and processes used for data collection and data analysis. The research
questions determined the selection of the research methods, which were described in
detail. The virtual school study setting was described, and participant selection process
were shared including participant profiles. Special considerations of interviewing
adolescent participants were reviewed from the research literature. A pilot study was
described including the process used to communicate any changes impacting the research
design based the researcher’s evaluation of preliminary research.

Chapter IV began with a description of the participant’s profiles. The profiles
served as an introduction of each student to the reader. The phenomenological data
collections were analyzed following the steps of a descriptive phenomenological method
and interpretive phenomenological analysis. The two method approach was necessitated
by two different epistemological orientations of the research questions, being either
descriptive or interpretive. The nomothetic results from descriptive phenomenology
reveal the common invariant structures of virtual school experiences. The idiosyncratic
results of interpretive phenomenological analysis described the individual’s self-
regulatory behaviors from the standpoint of self-determination theory. Both, the
nomothetic and idiosyncratic results share personal meanings of virtual school
experiences transformed into sensitive psychological statements and arranged into
themes. The common essences (i.e., nomothetic) and individual meanings (i.e.,
idiosyncratic) of experience were supported by actual student excerpts from the original
interview transcripts. Chapter IV included changes made to the study based on a pilot
study and the researcher’s reflexive journal. The reflexive journal described research
decisions based on issues and questions discovered during the research process.
Chapter V summarized three descriptive themes and one interpretive theme found in the study. A summary of findings was linked to each research question. Findings from the study included common essences of experiences and their psychological sensitivity for each participant. The participant’s individual self-regulatory experiences were described from the standpoint of self-determination theory. Implications were shared from participants’ excerpts suggesting met or unmet psychological needs. Connections between the findings and the review of literature were described. Limitations discovered during the research agenda were shared from the researcher’s perspective. Other sections included strengths and weaknesses of the study, and recommendations for future research. The findings and implications may be useful to parents, teachers, administrators, and others wishing to learn more about the participant’s perceptions regarding opportunities and challenges of the virtual school environment.
Chapter II is an investigation of research literature about the development and use of distance education technologies, development of online learning for grades K-12, quality components of virtual schools, the experiences of virtual students, the application of self-determination theory, and issues facing adolescent online learners.

Defining Distance Education

Distance education or distance learning refers to many different means of communication other than traditional classroom instruction. The method of instructional delivery is a major variable for distance learning to happen. How the method of delivery varies is discussed here from a historical perspective. In general, the teacher and learner occupy different physical spaces that must be mitigated for teaching and learning to occur. “The mitigation of occupying different spaces has been impacted by improvements in technology” (Casey, 2008, p.45).

According to Holmberg (1995), “the concept of distance education implies consistent non-contiguous communication between the supporting organization and its students. The communications are of two kinds:

1. One-way traffic in the form of pre-produced course materials sent from the supporting organization and involving students in interaction with texts; this can be described as simulated communication,

2. Two-way traffic, i.e., real communication between students and the supporting organization” (p. 2).
Holmberg (1995) elaborated on the non-contiguous communication requiring mediation, often in the form of one-way print or recordings augmented by two-way communication, such as telephone interaction. According to Holmberg (1995), “Usually students learn entirely individually and at their own pace. They then neither belong to a group or class, nor feel that they should do so” (p.1). A definition of distance learning by King, Young, Drivere-Richmond, and Schrader (2001) stated, “Distance Education is formalized instructional learning where the time/geographic situation constrains learning by not affording in-person contact between student and instructor (p. 8). A study by Garrison and Shale (1987) suggested three criteria for distance education to happen:

1. Distance education implies that the majority of educational communication between (among) teacher and students(s) occurs noncontiguously.

2. Distance education must involve two-way communication between (among) teacher and students(s) for the purpose of facilitating and supporting the educational process.

3. Distance education uses technology to mediate the necessary two-way communication (p. 11).

Researchers Garrison and Shale (1987) predicted the use of microprocessor-based courseware selected by students for a fully independent educational experience.

Distance Education Delivery Systems and Services

The earliest distance education was known as correspondence education. “Correspondence education was introduced as early as 1720’s and occurred as self-instructional texts, combined with communication in writing between the students and tutors” (Holmberg, 1995, p. 3). Distance education technologies have changed drastically since the first correspondence courses. “Since the mid 1990’s, web-based
instruction shares many features with earlier distance education methods such as correspondence study, video conferencing lectures, and TV courses” (Jung, 2001, p. 4). Modern day web-based instruction incorporates many of the attributes of earlier forms of distance education into ubiquitous learning environments incorporating texts, pictures, video and audio into large databases easily accessed by the learner (Jung, 2001).

The following sections describe selected distance learning technologies from a historical perspective. These distance learning technologies and services include the postal service, telephone/cable service, radio broadcasting, television broadcasting, macro-computers, personal computers, the Internet including the World Wide Web, and advancements in software.

Postal Service

One of the earliest methods to mitigate distance between teacher and learner was the use of mail. The early correspondence course was a distance learning method using the postal service. Teachers mailed printed materials to students and subsequently, students returned assignments in the same way. According to Lehman and Chamberlain (2009), correspondence courses presented many challenges. Although correspondence courses allowed widespread distribution, the rate of completion was generally poor. Another issue was the lapse of time between receiving the correspondence materials and later responding to the assignments. Another challenge with correspondence courses was assessment of students. Proctored tests required a supervisor to be present and administer the test. In some cases, tests were not proctored creating additional concerns about the students’ work being genuine. The early correspondence course was a slow
asynchronous delivery method with little or no face-to-face interaction between the 
teacher and students. According to Casey (2008), “the first course reported as distance 
learning was the Pittsburg Shorthand Training Program that brought cutting edge 
stenographic practices to the United States in 1852… and the University of Chicago is 
credited for creating the first college-level distance learning program in 1892” (p. 46).

Telegraph Service

The telegraph was invented in the mid-1800’s (Bates, 1914; Harasim, 2000). Although little research exists regarding telegraph as a distance education methodology, the telegraph set the stage for the telephone, facsimile, and the Internet. Carey (2009) describes the significance of the telegraph on the development of future communication systems.

The most important fact about the telegraph is at once the most obvious and innocent: It permitted for the first time the effective separation of communication from transportation. This fact was immediately recognized, but its significance has been rarely investigated (Carey, 2009, p. 3).

The telegraph established a new language using decoding procedures to read electrically induced signals over wire.

Telephone Service

According to Harasim, (2000) the telephone was invented in 1876. However, the use of the telephone for distance learning occurred nearly fifty years later. The telephone became a distance learning strategy beginning in the 1930’s and increased in usage in the last half of the 20th century (O’Leary & Quinlan Jr., 2007). The telephone offered synchronous interaction between teachers and students. Teachers communicated with students using the phone or amplification speaker allowing a group of students to hear the
instruction. Students communicated with their instructors using the telephone for clarification, questions, and guidance with assignments. The evolution of the telephone includes telephone conferencing, facsimile service, and mobile phones.

**Telephone conferencing.** With improvements in technology, teleconferencing offered two-way synchronous communication between several groups or individuals in different locations. “Community colleges began using telecourses in the 1970’s to reach a larger audience” (Prosser, 2011, p 23). A speaker amplification system allowed an entire classroom to meet at regional centers and hear the teacher from a remote location.

**Facsimile service.** The facsimile machine enables the user to send text and images over telephone lines for reproduction by another remotely located facsimile machine. Early facsimile machines were expensive and inconvenient to use. “Remote classroom sites would often share fax machines located in an office, the library, or media center hampering student accessibility, especially for evening and weekend classes” (Nahl, 1993, p. 208). According to The Fax Authority (2016), “the facsimile machine peaked in use from the 1980’s to mid 2000’s (para. 2). Eventually, facsimile transmissions were joined by other technologies such as email for the transmission of texts and images.

**Mobile phone/smartphone.** Mobile learning involves the use of personal learning devices such as a mobile phone or smartphone. According to research by Fuegen (2012), mobile learning became important early in the first decade of the 21st century. The features of the personal learning device are similar to web-based, wireless Internet services connected to computers. Mobile technologies provide organization tools useful
for scheduling learning events, file sharing and instant messaging. According to Fuegen (2012), mobile technologies provide flexibility for accessing instructional resources at many locations at times most convenient to the student. Some limitations of mobile learning include screen size, software limitations, device security, availability of networks, and personal knowledge of the learning device’s capabilities (Fuegen, 2012).

Radio Broadcasting

Radio broadcasting for educational purposes began in the 1920’s and expanded with the growth of transmitters and receivers in the following decades. Initially, radio broadcasting was taunted as a mass medium augmenting classroom instruction to K-12 students with immediacy. In 1924, Chicago-based Sears, Roebuck and Company funded the first Schools of the Air reaching an estimated 28,000 students across northeastern Illinois, northwestern Indiana and parts of Michigan (Bianchi, 2008). The success of the Chicago-based programming was credited to teachers and students interacting in the broadcast studio, similar to the classroom environment. Universities and other educational agencies delayed using radio as a medium for distance education until the 1930’s primarily due to the cost of infrastructure (Buck, 2006). According to research by Buck (2006), U.S. postsecondary institutions were unsuccessful for reasons other than the lack of infrastructure. The use of educational radio by postsecondary institutions was largely abandoned by 1940. Some of the reasons for the downfall included:

- programs considered boring by listeners;
- minimal interest by faculty to deliver instruction by radio;
- uncertainty about the size and nature of potential audiences;
• low enrollments in distance education courses delivered by radio; and
• minimal public recognition for the need for courses delivered by radio (Buck, 2006, p. 77).

Radio used for distance education was successful for some state-based schools including Ohio, Wisconsin, Texas, Oregon and Minnesota. One of the most innovative states was the Wisconsin School of Air from 1930 until the late 1940’s. The University of Madison received support from the Payne Fund in the spring of 1930. According to Bianchi (2008), “Wisconsin researchers designed an experiment to measure the effectiveness of radio in teaching current events and music education to students in rural schools” (p. 39). The researchers believed the best use of radio education was to supplement, not replace the classroom teacher. “Radio was considered a suitable distance education tool reaching rural one- and two- room school houses, which were poorly equipped and limited by poor roads” (Buck, 2006, p. 85).

During the early, 1940’s, the Federal Communication Commission (FCC) allocated part of the FM radio band for educational use (Buck, 2006). “The longest running School of the Air taking advantage of the FM band was Portland’s School of Air operating over 60 years from 1933 to the mid-1990’s” (Bianchi, 2008, p. 41).

Interestingly, radio for distance learning was developed much differently in Australia, largely due to its low population density. Many Australian students attended boarding schools in remote locations. These schools received correspondence school materials via the postal system, which were supported by the Royal Flying Doctors Service – School of the Air (SOTA). “As of 2005, sixteen schools were in operation using two-way radio rather than scheduled program broadcasts” (Hawthorne & Hopkins,
The bi-directional broadcast was delivered teacher to student, student to teacher, and student to student. Hawthorn and Hopkins (2009) report a major benefit using shortwave transceivers as the students feeling of support when needed.

Despite the rise and fall of radio as a mass distance learning medium, the combination of correspondence courses and radio brought new opportunities for learning through television technology (Casey, 2008).

Television Broadcasting

New forms of one-way communication occurred with the introduction of television. Some of the earliest known applications of television as an instructional medium began in 1934 when a university located in the north, west-central U.S. began broadcasting courses by television (Casey, 2008). Pre-recorded television programs were supplemented with text-based materials. Beginning in the 1950’s, instructional television programs became popular for mass distance learning opportunities. “In 1963, to further support the expansion of distance learning opportunities, the FCC created the Instructional Television Fixed Service (ITFS), a band of 20 television channels available to educational institutions to provide a low cost, fixed range, subscriber-based system capable of being utilized for the distribution of broadcast courses” (Casey, 2008, p. 45). “A few decades later, during the 1980’s, television expanded their educational markets by introducing videotaped programs offering more scheduling flexibility for learners” (Gilbert, 2001, p. 18). The television broadcasting market grew with improvements in technology attracting support from public and private resources. According to Harper et al. (2004), “the federal government took steps to create distance-learning system that
would encompass government, industry and universities” (p. 589). Among the various distance education initiatives was support for the Public Broadcasting Service.

The use of television as a distance learning system has its downfalls according some researchers. Like other correspondence courses, the growth of television and radio courses were limited due to slow asynchronous learning and lack of interaction between the teacher and learner. Some critics suggest failure of learning from televised instruction due students not being mentally engaged with the instruction (Choi & Johnson, 2005).

Evolution of Online Learning

The historical development of computers in education begins in the 1960’s and continues to evolve to the present. The following sections attempt to place many of the technological improvements in chronological order. However, exceptions to the order of events may be argued. The focus here is related to developmental achievements supporting the emergence and growth of online learning rather than chronological facts or opinions about technological innovations. A general understanding about the ever-changing development of computer technology may be useful in understanding research about online learning and attributes of online learning platforms.

Mainframe and Minicomputers

Large mainframe computers were introduced to businesses and schools in the 1960’s. Early use was found in central offices to handle administrative tasks such as payroll and business accounts. Teachers with an interest in computer science were credited for pioneering the earliest instructional experiences using computers. Students
would learn programming skills, mostly in computer clubs (Kurland & Kurland, 1987). During the 1960’s, large time-sharing networks were created to explore and expand the role of computers to improve instruction. Eventually, computers were used to teach multiple subjects beyond computer programming.

By the late 1960’s computers were no longer simply being used to teach programming to select students; they were content-delivery vehicles for many subject areas. Partnerships between university researchers, agencies of federal government, and major corporations began offering specifically developed educational computing systems to schools (Kurland & Kurland, 1987, p. 319).

The efforts of delivering content and instruction using computers led to systems such as PLATO (Programmed Logic Automatic Teaching Operations) designed to reach thousands of students. The University of Illinois developed PLATO, which required an expensive intranet network system connected to terminals. The transition from centrally located mainframe computers to minicomputers with terminals enabled systems such as PLATO to become more distributive. A working paper presented by Hal Winsborough describes the transition from mainframe to minicomputers.

The Social Sciences Computing Cooperative at the University of Wisconsin, Madison, where I work, has been operating a computing facility for social science research since 1972. For the first eight years, we operated in the “mainframe” model; complete with glass enclosed shrine, an IBM iron god, and batch processing. In 1980, we made the minicomputer transition when we got the VAX 11/780. Before long, nearly every faculty office and most of the research rooms had terminals connected to the VAX (Winsborough, 1992, p. 4).

The cost of minicomputers including the maintenance aspects were cost prohibitive for public school use. However, the use of mainframe and minicomputers computers created interest in computer-assisted instruction setting the stage for distance learning using microcomputers (Reiser, 2001).
First Online Courses

The first online courses predated the use of personal computers and the Internet. The University of Illinois created an intranet for its students in 1960, approximately nine years before the Department of Defense created the Internet (Hickey, 2014). The mainframe system linked terminals on the University of Illinois Campus where students could listen to recorded lectures and access course materials. Eventually, the intranet system evolved into PLATO, which operated thousands of terminals across the globe (Hickey, 2014, para. 4). A historical overview from Hickey (2014) offers a snapshot of early online learning leading to public virtual schools, which emerged in the mid-1990’s.

- **1960** – The University of Illinois created an intranet connecting students to lectures and course materials using remote terminals.
- **1979** – The first widely popular educational computer game, Lemonade Stand is released for the Apple II and offered with Apple software packages.
- **1984** – Electronic University Network (EUN) is established to assist colleges and universities to expand online learning courses. The EUN offered its first online course in 1986 for use with DOS and Commodore 63 computers.
- **1994** – CalCampus was offered through Internet providers America Online, Delphi, Compuserve and others to stand-alone desktop computers.
- **1997** – California Virtual University (CVU) was established as a clearinghouse of information about all online courses from accredited California Colleges and Universities (Hickey, 2014, para. 1).

According to the historical overview from Hickey (2014), today’s online courses stemmed from technological advancements in the early 1960’s. By the mid-1990’s, online courses were offered from a variety of sources such as public schools, private schools, colleges, and universities. Eventually, online courses were offered in program sequences leading to fulfillment of school completion requirements from elementary
schools to higher education. Students in some states across the U.S. were able to attend
K-12 schools leading to diplomas. Likewise, colleges and universities offered
certificates, undergraduate diplomas, and advanced degrees online.

**Personal Computers Emerge as a Distance-learning Tool**

Prior to the onset of the personal computer, researchers in the 1960s recognized
the potential of reusable objects for computer-based instruction. Reusable objects serve
as an interface between the user and the computer program. The objects provide a user-friendly
means to interact with computer screen settings, images, and functions. Reusable objects are referred to as educational objects, knowledge objects, intelligent
objects, and data objects. These electronic objects may be customized in smaller
standardized parts for each learner. Thirty years later, reusable objects offered adaptable
and scalable online curriculums able to reach mass audiences at a lower cost compared to
traditional face-to-face instruction (Lim, 2002). The microcomputer, or more commonly
referred to as the *personal computer* streamlined the use of digital objects in a familiar
image serving as an interface with the user.

Personal computers emerged in school districts shortly after becoming available
to the public at large. “Many educators were attracted to microcomputers because they
were relatively inexpensive, were compact enough for desktop use, and could perform
many of the functions performed by larger computers that preceded them” (Reiser, 2001,
p. 59).
First Personal Home Computers

The first mass produced personal home computer was the Apple II™, introduced in 1977. Competitor IBM™ launched its first home computer known as the IBM-PC™ in 1981. According to Trueman (2016), the number of personal computers grew from one million in 1980 to 30 million in the mid-1980’s. As personal computers became more prevalent in homes and schools, the opportunity to learn using personal computers improved. Since the mid-1980’s, personal computers impacted students and adults in homes, public schools, non-public schools for education and adult training purposes. Schools and businesses soon recognized the need for partnerships to build a technological savvy workforce.

Business and Industry Use of Personal Computers

Business and industry have used computer-assisted instruction for decades preparing their workforce to meet various standards and certifications. Trade and industry experienced a gradual shift from low and middle wage income jobs in the mid-1900’s to higher paying jobs requiring training and management ability in the mid-1990’s (Bresnahan, Byrnjolfsson, & Hitt, 2002). A competitive workforce required new skills using computers. Brensnahan et al. (2002), confirmed earlier research on the impact of computers and skilled labor as “complementary to new work organization, new products and new services, and information technology” (p. 339). The demand for increased computer skills was accompanied with pressure for technological competence in the workplace. A study by Salanova, Grau, Cifre, and Llorens (2000), examined several workforce studies from the 1990’s supporting “high exposure to technology (i.e.,
frequency of usage, computer training, computer game experiences, etc.) is related to a decrease in anxiety” (p.575). However, the research by Salanova et al. (2000) mentioned computer burnout as a potential outcome for workers with low computer efficacy. Understanding how to use computers, operate software, and possessing adequate keyboarding skills were found to be important in the workplace.

A research study by Lynch (2000) reported a need for computer technology education to prepare the workforce for business and industry careers.

The assembly line, single skill jobs of the factory or construction site and the office clerk typist or bookkeeper are largely defunct. Rather, there is a tremendous demand for educated people with general employability and specialized technical skills in areas related to computer science, and computer science technology, high-tech manufacturing, software development, biotechnology, biomedical applications, sales and services, data base management, and health care (Lynch, 2000, p. 7).

Educational leaders have recognized the role of schools in preparing students for careers demanding 21st century computer-related skills.

**School Use Personal Computers**

Early learning on computers was primarily related to computer programming. High school students interested in computers would work with teacher enthusiasts in computer programming courses or after school clubs. However, the use of computers to augment teacher instruction in a variety of subject matter emerged with improvements in technology.

According to researchers Kulik and Kulik (1991), educational technologists have been developing programs of computer-based education to drill, tutor, test students, and
to manage instruction programs since the 1960’s. Eventually, computer-based education (CBE) became commonly referred to as computer-assisted instruction (CAI).

CAI became more user-friendly since the 1960’s. The interaction between the user was enhanced by the use of text, graphics, sound and video integrated into software programs. According to Lehman and Chamberlain (2009), “With the onset of personal computers, CAI became more interactive for the learner” (p. 11).

Early educational software programs used for CAI were primarily sold as floppy disks. Each computer was a stand-alone station and considered as being offline. The Internet changed the way CAI could be accessed and shared in the late 1980’s, when the first commercial Internet service providers were available to the public. Kulik, Kulik and Bangert-Drowns (1985) identified four uses of the computer in teaching leading to widespread use of the Internet in schools:

a. In drill-and-practice applications, the teacher presents lessons to pupils by conventional means, and the computer provides practice exercises as a follow-up;

b. in the tutorial mode, the computer both presents the concepts and provides practice exercises on them;

c. in dialogue mode, the computer presents lessons and practice, and the student is free to construct natural language responses, ask questions in unrestricted mode, and almost completely control the sequence of learning events; and

d. in computer-managed instruction, the computer evaluates students either online or offline, guides the students to appropriate instructional resources, and keeps records (p. 59).

Access to computers and the Internet were barriers in many school districts for a variety of reasons during the 1990’s. Some of the reasons for limited access included cost of the technology, space requirements, teacher training, maintenance of computer
networks, and fear of inappropriate uses of computers. As the student to computer ratio improved, and filtering of the Internet improved in schools, the use of computers became more commonplace as a tool for learning. In the beginning of the 21st century, some school districts began to adopt 1:1 computing, leading to more distance learning opportunities. The concept of 1:1 computing is to provide a portable computer to every student for the school day. Some districts allow students to keep the computer at school and home providing 24/7 access during the school year. “In 2000, there were approximately 1000 American schools using a 1:1 model” (Dunleavy, Dextert, & Heinecket, 2007, p. 440).

Impact of the Internet on Public Schools

The early Internet was developed in the 1960’s for scientific purposes. Eventually, the military began using the Internet by the mid-1970’s (DiMaggio, Hargittai, Neuman, & Robinson, 2001). Research by DiMaggio et al. (2001) suggests the Internet emerged for public use in 1982 and grew rapidly in the early 1990’s. According to the Lenhart, Simon, and Graziano (2001), the federal government made an effort to increase the use of computers and the Internet to schools in 1996. “During this time, E-rate was established which discounted the cost of Internet services between 20 to 90 percent depending on the number of poverty students served within a district” (Lenhart et al., 2001, p. 3). A survey of 754 teens conducted by Lenhart et al. (2001) in November-December 2000 found 73% of youth ages 12-17 use the Internet. Other findings about early use of the Internet related to schoolwork are found on Table 1. The limited number of computer labs within school buildings hampered early use of the Internet in schools.
A survey by Lenhart et al. (2001) discovered primary use of the Internet by teens was at home due to improved accessibility. Access to web-connected computers in school settings improved with the increase in technology investments by school districts, and the arrival of 1:1 computing. In many cases, 1:1 students have anytime, anyplace access to the Internet, increasing the opportunity to participate in distance learning opportunities. Table 2 describes the added value of improving student access of computers in schools seven years after the Lenhart et al. (2001) school use Internet survey.

**Impact of Computers on Student Achievement.**

Studies related to student achievement share a variety of terms or nomenclature in the literature. Many terms are similar to computer-based instruction such as

**Table 1**

*School Related Use of the Internet*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used the Internet for school research</td>
<td>94%</td>
</tr>
<tr>
<td>Used the Internet as a major source for their most recent school project.</td>
<td>71%</td>
</tr>
<tr>
<td>Use a Web site set up by a school or a class.</td>
<td>58%</td>
</tr>
<tr>
<td>Downloaded a study aid.</td>
<td>34%</td>
</tr>
<tr>
<td>Created a Web page for a school project.</td>
<td>17%</td>
</tr>
</tbody>
</table>

Table 2

*Added Value Summary for Accessing Data, Processing Information and Communicating Knowledge*

<table>
<thead>
<tr>
<th>Task</th>
<th>Added Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessing data</td>
<td>• Multi-sensory</td>
</tr>
<tr>
<td></td>
<td>• Greater amounts of data</td>
</tr>
<tr>
<td></td>
<td>• Searching and mining capabilities</td>
</tr>
<tr>
<td></td>
<td>• Timeliness of education</td>
</tr>
<tr>
<td></td>
<td>• Relevance of the information</td>
</tr>
<tr>
<td>Processing information</td>
<td>• Self-paced</td>
</tr>
<tr>
<td></td>
<td>• Individual attention</td>
</tr>
<tr>
<td></td>
<td>• Remediation</td>
</tr>
<tr>
<td></td>
<td>• Practice to the point of fluency</td>
</tr>
<tr>
<td></td>
<td>• Visualizing information</td>
</tr>
<tr>
<td></td>
<td>• Develop process or skill capabilities</td>
</tr>
<tr>
<td></td>
<td>• Organize or categorize information</td>
</tr>
<tr>
<td>Communication knowledge</td>
<td>• Publish information to an audience</td>
</tr>
<tr>
<td></td>
<td>• Communicate in an authentic format and style</td>
</tr>
<tr>
<td></td>
<td>• Communicate findings and understanding to others</td>
</tr>
</tbody>
</table>


computer-aided instruction, computer-managed instruction and computer-assisted instruction. Other terms relating to learning from computers may include web-based
Early studies of CAI impact on school-age children found mixed results. An early study by Kulik et al. (1985) found “a positive effect of CAI on achievement of elementary children, suggesting a typical application of CAI to be 15 minutes per day, four days per week for 26 weeks” (p. 70). More research by Kulik and Kulik (1991) reviewed three earlier CBI studies from the late 1970s and early 1980s suggesting “CBI is at least as effective as live teaching and lead to mastery of learning in a shorter period of time” (p. 76). However, some studies show little difference between traditional learning and CBI/CAI. Leh and Jitendra (2012) found no difference between computer-mediated instruction and teacher-mediated instruction for third grade students struggling in mathematics. Another research study from Blok, Oostdam, Otter, and Overmaat (2002) found a reading CAI program as “generally positive, though small, effect on beginning readers” (p. 121).

More recent studies have found online learning to be comparable or slightly more effective compared to traditional classroom learning. A meta-analysis funded by the United States Office of Education (USOE) evaluated and reviewed online learning published in 2010. The meta-analysis found 176 abstracts between 1996 and 2008 relating to web-based instruction excluding studies involving video and audio-based telecourses, or stand-alone computer based-instruction. Other criteria for the USOE funded meta-analysis required either random assignment or controlled quasi-experimental
designs and examining objective measures of student learning. From 176 abstracts, only nine studies involved K-12 learners with the remaining studies involving higher education and adult training. Key findings from USOE meta-analysis include:

- Instruction combining online and face-to-face elements had a larger advantage relative to purely face-to-face instruction than did purely online instruction.

- Effect sizes were larger for studies in which the online instruction was collaborative or instructor-directed than in those studies where online learners worked independently.

- Most of the variations in the way in which different studies implemented online learning did not affect student learning outcomes significantly.

- The effectiveness of online learning approaches appears quite broad across different content and learner types.

- Effect sizes were larger for studies in which the online and face-to-face conditions varied in terms of curriculum materials and aspects of instructional approach in addition to the medium of instruction.

- Blended and purely online learning conditions implemented within a single study generally result in similar student learning outcomes.

- Elements such as video or online quizzes do not appear to influence the amount that students learn in online classes.

- Online learning can be enhanced by giving learners control of their interactions with media and prompting learner reflection.

- Providing guidance for learning for groups of students appears less successful than does such mechanisms with individual learners (Means, Toyama, Murphy, Bakia, & Jones, 2009, pp. xv-xvi).

“Overall, the USOE meta-analysis found that classes with online learning (whether taught completely online or blended) on average produce stronger student learning outcomes than do classes with solely face-to-face instruction. The mean effect size for all 51
contrasts was +0.24, \( p<.001 \)" (Means et al., 2009, p. 18). However, the study cautions not to generalize the findings for K-12 students due to the small number of K-12 studies meeting the conditions compared to undergraduate and older students. Another caution related to curriculum and instruction as a significant variable across the studies included in the meta-analysis. “Instruction could differ in terms of the ways activities were organized (for example as group work in one condition and independent work in another) or the inclusion of instructional resources (such as a simulation or instructor lectures) in one condition but not in the other” (Means et al., 2009, p. xvi). The USOE meta-analysis revealed three types of learning of web-based learning from the 176 research studies under review.

1. Expository instruction – Digital devices transmit knowledge.

2. Active Learning – The learner builds knowledge through inquiry-based manipulation of digital artifacts such as online drills, simulations, games, or microworlds.

3. Interactive learning – The learner builds knowledge through inquiry-based collaborative interaction with other learners; teachers become co-learners and act as facilitators (Means et al., 2009, p. 3).

The newer forms of online learning involving web-resources including multimedia and collaborative technologies have advanced significantly from the earlier televised broadcast and video conferencing. Another consideration was the blended instruction methodology. Further analysis from the study by Means et al. (2009) found “blended conditions often included additional learning time and instructional elements not received by the students in the control conditions” (p. ix). The impact of computers on student achievement was limited to a small number of studies indicating a need for further
research in the topic. According to the meta-analysis study by Means et al. (2009), “The effectiveness of Internet-based, interactive online approaches perpetuates the need for information about the conditions which online learning is effective” (p. xi).

**Video Conferencing**

The first video conferencing demonstration for the public was held at the 1968 Worlds Fair in New York (McGee, 2015). However, video conferencing was expensive and would not become popular for practical use until the Internet and video compression was practiced in the 1990’s. A north, west central state was among several states implementing high-speed fiber optic video conferencing systems in the mid-1990’s. The state’s implementation of the fiber optics system prompted a study of its usefulness as a distance education system. The research study by Miller and Miller (2000) served as a benchmark for a video conferencing initiative, which linked libraries, hospitals, schools, colleges, universities and National Guard armories using fiber optic cable. The new statewide fiber optic video conferencing system was launched in 1993 with a goal for completion by the year 2000. The study by Miller and Miller (2000) was conducted in 1994, and later in 1997 when more fiber optic sites were established. The study focused on the acceptance of synchronous video conferencing as a distance education system among secondary agriculture education teachers using the fiber optic system linked to their school site. In the first study, 102 respondents indicated having access to fiber optic video conferencing rooms at their school. None of the teacher used the video conferencing system for teaching purposes. However, nine teachers reported taking classes via the statewide video conferencing network. In 1997, the percentage of fiber
optic supported classrooms had grown to 58.7%. The study reports 88 of the 150 teachers responded to the second survey, with only four teachers (2.7%) teaching a class on the fiber optic video conferencing system. Nearly all if the teachers reported taking classes or attending meetings using the fiber optics video conferencing system (Miller & Miller, 2000). The study’s findings revealed low usage of the fiber optics video conferencing system. Table 3 identifies 16 obstacles reported by the respondents. Few obstacles related to the effectiveness of the video conferencing technology, maintenance, and operational support. The obstacles were related to scheduling conflicts, the non-kinesthetic nature of video conferencing, pedagogical training, administrative support, and teacher incentives. Despite the obstacles identified in the study, the respondents rated 14 curriculum content areas ranging in appropriateness for video conferencing delivery on a rating scale found on Table 4. The agriculture teachers tended to agree on appropriateness of teaching content knowledge using the video conferencing such as economics instruction. Courses such as horticulture, which typically include hands-on laboratory instruction were considered to be least appropriate for video conferencing delivery.

Email and Sharing Information Online

Improvements in technology provided new ways to mitigate distance between the teacher and learner near the end of the 20th century. Although email was first established by the Department of Defense around 1960, it did not become practical for public use until the 1980’s and 1990’s (Tao & Reinking, 1996). Growing access to the Internet is
Table 3

Percentage of Teachers Who Selected Slightly Significant, Moderately Significant, or Significant for Each Obstacle

<table>
<thead>
<tr>
<th>Obstacle</th>
<th>1994</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordination of schedules between schools</td>
<td>94.1</td>
<td>94.6</td>
</tr>
<tr>
<td>The fiber optic system could create scheduling problems</td>
<td>88.2</td>
<td>91.3</td>
</tr>
<tr>
<td>Laboratory sessions cannot be taught via the fiber optic system</td>
<td>87.3</td>
<td>77.2</td>
</tr>
<tr>
<td>Distributing materials between sites</td>
<td>87.3</td>
<td>80.5</td>
</tr>
<tr>
<td>Lack of local support staff</td>
<td>87.3</td>
<td>82.4</td>
</tr>
<tr>
<td>Supervised agricultural experiences can’t be managed using the fiber optic system</td>
<td>86.3</td>
<td>83.1</td>
</tr>
<tr>
<td>Costs associated with the fiber optic system</td>
<td>85.3</td>
<td>78.4</td>
</tr>
<tr>
<td>Lack of training</td>
<td>83.3</td>
<td>84.5</td>
</tr>
<tr>
<td>Preparation time needed by teachers</td>
<td>82.4</td>
<td>92.6</td>
</tr>
<tr>
<td>Fear the fiber optic system would reduce the number of agriculture programs.</td>
<td>78.4</td>
<td>68.5</td>
</tr>
<tr>
<td>Agriculture teachers are too busy to teach via the system.</td>
<td>77.5</td>
<td>77.2</td>
</tr>
<tr>
<td>Lack of incentives for training</td>
<td>77.5</td>
<td>77.0</td>
</tr>
<tr>
<td>Administrators do not understand teacher’s needs of system</td>
<td>77.5</td>
<td>75.0</td>
</tr>
<tr>
<td>Difficulty in establishing cooperative relationships among schools</td>
<td>68.6</td>
<td>81.1</td>
</tr>
<tr>
<td>Negative attitude of teachers toward fiber optic system</td>
<td>61.8</td>
<td>66.9</td>
</tr>
<tr>
<td>Lack of student interest</td>
<td>58.8</td>
<td>68.9</td>
</tr>
</tbody>
</table>

## Table 4

*Appropriateness of the Fiber Optic Video Conferencing System to Deliver Agriculture Curriculum Areas to High School Students*

<table>
<thead>
<tr>
<th>Curriculum Area</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural economics</td>
<td>4.07</td>
<td>.77</td>
</tr>
<tr>
<td>Agricultural marketing</td>
<td>4.02</td>
<td>.83</td>
</tr>
<tr>
<td>Job getting and keeping skills</td>
<td>3.00</td>
<td>.88</td>
</tr>
<tr>
<td>Agricultural sales and service</td>
<td>3.87</td>
<td>.88</td>
</tr>
<tr>
<td>Leadership</td>
<td>3.83</td>
<td>1.01</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>3.76</td>
<td>.90</td>
</tr>
<tr>
<td>Animal Science</td>
<td>3.62</td>
<td>.94</td>
</tr>
<tr>
<td>Natural resources</td>
<td>3.53</td>
<td>1.01</td>
</tr>
<tr>
<td>Food science</td>
<td>3.41</td>
<td>.95</td>
</tr>
<tr>
<td>Agriculture production</td>
<td>3.26</td>
<td>1.06</td>
</tr>
<tr>
<td>Plant and crop science</td>
<td>3.20</td>
<td>1.06</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>3.03</td>
<td>1.09</td>
</tr>
<tr>
<td>Horticulture</td>
<td>2.86</td>
<td>1.3</td>
</tr>
<tr>
<td>Agriculture mechanics</td>
<td>2.09</td>
<td>1.12</td>
</tr>
</tbody>
</table>

Note: 1= strongly agree, 2=disagree, 3= neutral, 4= agree, 5=strongly agree. Adapted from Miller & Miller (2000). A telecommunications network for distance learning: if it's built, will agriculture teachers use it? *Journal of agricultural education, 41*(1), p.84.

associated with email usage. Between 1990 to 1995, the first commercial Internet services emerged including AOL™, Prodigy™, and CompuServe™ (Moore, 2014).

According to Moore (2014), only 1 in 10 Americans were on the Internet in 1996, and by 2001 more than half of Americans were using the Internet.
As a distance-learning tool, email provides a quick and easy way to send asynchronous digital messages between students, and between the students and their instructors. Eventually, email became a vehicle for attaching a variety of media (e.g., text documents, audio files, video files, and web-links) offering the user a vast amount of utility. Meij and Boersma (2002) claim the positive aspect of email is allowing students time for reflection and thinking about their responses, however a negative aspect is less interaction and dialogue on timely topics and responding to immediate questions. The successful use of email in schools is affected by:

a. the proper (e.g., synchronous) scheduling of the lessons and their email moments in the teamed-up classrooms.

b. creating a common ground for communication (e.g., by groups introducing themselves, and

c. the choice of appropriate means of responding to an email [such as] annotating, repeating or paraphrasing, a portion of the received email (Meij & Boersma, 2002, p. 190).

Email communications involve knowledge and skills related to email etiquette, how email is shared with others, legal responsibilities, and the organization and storage of email data. Spence (2002) identified the need for email etiquette and rules governing higher education students to be mindful of (1) interpersonal skills, (2) fragility and ownership of data, (3) dual use (e.g. conflicts between organizational use and personal use), and (4) monitoring and privacy.

**Web-based Computer Assisted Instruction (CAI)**

Prior to web-based CAI, which emerged in the 1990’s, stand-alone software programs for personal computers were accessed using floppy disks. Eventually, the
floppy disk was replaced by digital downloads from the Internet. Popular use of the Internet for downloading software may be subject to debate, however a web source from California State University, History of Computers in Education (Murdock, 2016) claims software could be downloaded since 1997 with widespread use by 2007. Since the mid-2000’s, web-based CAI may be accessed from large data servers hosting software programs with associated data files for each user. The remote data servers or web-based servers allow multiple users to interact simultaneously accessing large information databases, streaming video and audio files.

Web-based CAI frees the remote computing device from the need of storing large amounts of data (e.g., computer programs and digital files). Since 2007, CAI capitalized on web-based technology and introduced smaller discrete software programs known as computer apps. The apps communicate with the web-based servers significantly reducing the cost of the software and computer processing needs at the user level. Many apps are available at no cost or for small purchase fee. The free apps often feature the opportunity to upgrade the software for a fee. Other apps use pop-up banners to advertise products or services to the app user. Apps may be used on personal computers or mobile technology such as the tablet-computer or smartphone device. Apps stores were introduced in 2007 with built-in access on tablet computers and smartphones (Godwin-Jones, 2011). The most sophisticated apps interact with cameras, web-based data servers, and traditional computers. These improvements in computer technology and the high-speed Internet spawned new online learning opportunities by means of educational gaming.
Social Media and Web 2.0

According to Hendricks (2013), the first recognizable social media website, Six Degrees™ was created in 1997. Six Degrees™ allowed users to create a profile and friend other users to connect with other people. During the first years of the 21st century, similar social media sites emerged such as MySpace™ in 2003, Facebook™ in 2004 and Twitter™, a popular text-messaging site in 2006 (History Cooperative, 2016). According to the History Cooperative (2016), by 2010, there were dozens of social media services became widespread for photo-sharing, microblogging and bookmarking. The social media phenomenon is used in the everyday personal lives of technology users, business organizations, marketing firms, and educational institutions. Lehmann and Chamberlain (2009), found educators use social media for blogging, webcasting, photo-sharing and tagging. Students have incorporated many of these features into the course management system allowing the instructor to manage the content and monitor the discussions and contributions. In some cases, students form a social community for dialogue sometimes referred to as a social forum. The dialogues may be pragmatic about the course content and assignments leading to meaningful discussions and active learning among the participants. According to Lehmann and Chamberlain (2009) research supports the use of argumentative dialogue seeking some level of disagreement over the content. “If everyone agrees if everyone else, the dialogue lacks real depth” (Lehmann & Chamberlain 2009, p. 115). There are many different types of social software offering opportunities for dialogue between students using social media. According to McLoughlin and Lee (2007), many types (italicized below) of social media exist such as
Blackboard™ (learning management), Windows Live Messenger™ (discussion board), Skype™ (audiovisual communication), Facebook™ (building personal relationships), Flicker™ (photo sharing), and Digg™ (bookmarking/RSS aggregator). “Many Web 2.0 tools come naturally to today’s students; they have never known a world in which such settings did not exist” (Ormiston, 2011, p. 9). The implications for pedagogical change using social software include three principles of effective learning according to McLoughlin and Lee (2007):

1. The benefits of making connections to others and communicating through instant messaging and social networking, for instance, can provide an impetus for inquiry-based approaches and collaboration.

2. Social software can provide the building blocks for an environment that enables multiple forms of support, as it allows people to connect, interact and share ideas in a fluid way.

3. A third critical component of effective learning is active participation with others, including peers, instructors, experts and community (p. 671).

Social software is collaborative and cooperative by nature. Oral, written, and audio narratives may be shared, edited, co-authored, and extended by online collaboration software. A wide audience may benefit from sharing and publishing feedback resulting in self-reflection and deeper learning (McLoughlin & Lee, 2007). Research by Dabbagh and Kitsantas (2011) suggested an increase in the use of social media for formal and informal learning starting out as an individual platform known as a Personal Learning Environment (PLE). Instruction in the use of social media or Web 2.0 technologies for learning is important in school settings. Dabbagh and Kitsantas (2011) found, “students tended to use more Web 2.0 technologies during their free time than in school… the most common technology used was email to transfer files and seek help from teachers and
peers” (p.3). A framework for using social media to support self-regulated learning in PLE’s consist of three levels:

Level 1 – Students are encouraged to use social media such as blogs and wikis and manage content such as creating online bookmarks, media resources, personal journals and calendars.

Level 2 – Instructors encourage students to use social media to engage in basic sharing and collaborative activities such as enabling a blog comment option or adding collaborative workspace using a wiki.

Level 3 – Instructors encourage students to use social media to synthesize and aggregate information in order to reflect on the overall learning experience (Dabbagh & Kitsantas, 2011, p. 4).

According to Dabbagh and Kitsantas (2011) the use of social media for learning may vary among students depending on their “motivational beliefs, such as self-efficacy beliefs as well as learning styles since PLEs are individualized by design and will differ from student to student” (p. 5). Teaching the skills needed to use Web 2.0 tools may be enhanced by focus lessons, guided instruction, productive group work and independent learning (Fisher & Frey, 2013).

Educational Gaming

“Initially, computers were used for business, mathematical computations, and then for leisure purposes” (Vogel et al., 2006, p. 230). Computers have become increasingly popular in the educational gaming market. Some researchers suggest computer games as a natural progression of children experiences growing up in the millennial generation (Oblinger, 2004). Computer games are ideal as educational tools for use under the guidance of skilled teachers.
Games are part of our social and cultural environment: children grow up playing computer, video and Internet games and continue the practice throughout college. Although the appeal of games is “fun,” there are deeper elements that may provide a new tool for educators. For learners who are experiential, social, multi-taskers, games may provide a new freshness of approach and motivation to their studies. Although a promising tool, games are not replacements for faculty involvement, direct student experience or the hard work of learning (Oblinger, 2004, p. 16).

A meta-analysis by Vogel et al. (2006) found positive results from those using interactive simulations or games.

The overall result of the meta-analysis, then was that those using interactive simulations or games report higher cognitive gains and better attitudes toward learning compared to those using traditional teaching methods (Vogel et al., 2006, p. 237).

However, many poorly written articles were not useful for the meta-analysis according to Vogel et al. (2006). Hence, the conclusion is insufficient to state a high level of confidence.

Virtual Reality

Virtual reality may be described using terminology such as virtual worlds or virtual field trips. Virtual reality (VR) is relatively new to educational gaming. Advances in computer technology and increased power have increased the graphical capabilities of computers according to Vogel et al. (2006). Entire landscapes, structures and moveable objects are rendered into virtual scenes highly interactive with the user, or multiple users simultaneously. Video blog post Virtual Reality Guide (2016) claims early virtual reality was initially used by the military to train pilots in the 1960’s, and later embraced in the 1980’s and 1990’s by video game makers Sony™ (i.e., PlayStation™) and Microsoft™ (i.e., Xbox One™) using cutting edge graphics to mimic
reality. The potential for educational applications of virtual reality has been discussed since the early 1980’s and has evolved with the 3-D multi-user environments accessible on the Internet in the first decades of the 21st century (Salmon, 2009). An example of a popular 3-D multi-user environment (3-D MUE) is Second Life™, accessible on the Internet, where users create avatars. The avatars represent the users and explore virtual environments, including virtual field trips and virtual labs.

Bricken (1991) describes the value of VR as a learning environment: “VR offers teachers and students unique experiences that are consistent with successful instructional strategies; hands on learning, group projects and discussions. Within the limits of system functionality, we create anything imaginable and become part of it” (p. 178).

A study by Falloon (2010) suggests potential of virtual worlds and gaming in education as powerful mediums for learning. Virtual worlds require the user to create an object representing self, referred to as an avatar. The user creates oneself as an object within the virtual world and is able to choose gender, hair color, dress, and more. The use of avatars places the user in a constructed virtual reality with other players occupying the same space. Social interaction and collaboration is less intimidating compared to face-to-face interactions for some users (Falloon, 2010). The avatar is able to search the virtual world to meet other avatars and complete quests and exchange knowledge. Virtual worlds and gaming often involve role-playing to complete a series of short-term quests. The engagement with the virtual world is filled with stimulus-response activities that may appeal to some students and be less appealing to others. According to research from Antonaccii et al. (2008) virtual worlds provide the user with the ability to complete
tasks that may be too difficult in the real world due to constraints, allows social interaction and collaboration, and can adapt and grow to the user’s needs.

Virtual field trips may resolve many challenges of being present on-site. Students may witness simulations of human surgery, flying an airplane, or role-play as a zookeeper constructed from digital models. The actual student presence in these situations and many other situations may be undesirable or inappropriate. Richards et al. (2012) suggested virtual field trips as a means to overcome the obstacles of on-site field trips.

The ability to conduct a virtual field trip can address many of these issues and provide an opportunity for students to gain knowledge and skills needed for scientific inquiry such as hypothesis formation and testing, designing experiments, conducting investigations, using secondary resources and data, using equipment and information and communications technology (ICT), managing risk, collecting data, performing analysis and communicating conclusions (Richards et al., 2012, para. 5).

Concerns about virtual reality and educational gaming relate to authenticity and learning value. The user is typically engaged in a reward system rather than the educational content. Shelton (2007) found, “The reward systems are not associated with learning activity, but rather act as a means to an end so that the player is rewarded for correct behavior” (p. 106). A study by Burgos, Tattersall and Koper (2005, para. 7) find another problem with educational gaming as “a disconnect between the educational setting and game,” isolating the learning from the game itself. Research by Burgos et al. (2005) suggests consequences such as a passing level built into the learning design structure. Another concern relates to the representation of the actual user. The reality may be manipulated in ways that mislead the participants in a variety of ways. Users
may fantasize their actual character, posing as the opposite sex or as a super hero. Cheesbro and McMahan (2011) studied the concept of *avatar* as a digital body affecting intrapersonal and interpersonal communications. The user portrays physiological and psychological messaging and places the constructed being of self in a constructed environment to interact with others. According to Cheesbro and McMahan (2011), the projection of one’s identity is conveyed through verbal and nonverbal symbol-using. “We individually decide if we will accept, reject, or modify the projections of the self-based on feedback we receive” (Cheesbro & McMahan, 2011, para. 7). Cheesbro and McMahan suggest the use of avatars as new venues for human communication offering a wider range of experiences.

**Online Management Systems**

A variety of online management systems emerged to augment the relationship between the teacher and student engaged in web-based environments. The terminologies for online management systems include course management system, curriculum management system, learning management system (LMS), learning platform, distributed learning system, content management system, web portals, and instructional management systems (Coates, James, & Baldwin, 2005). According to Coates et al. (2005), “LMS grew from a range of multimedia and internet developments in the 1990s” (p. 20). Some commercial management systems include WebCT™, Blackboard™, and Learning Space™ (Coates et al., 2005). Morgan (2003) defines the course management system as,

a software system that is specifically designed and marketed for faculty and students to use in teaching and learning. Common course management systems in the higher education environment include, but are not limited to, WebCT, Blackboard, Learning Space, and eCollege. Today, most course management
systems include course content organization and presentation, communication tools, student assessment tools, gradebook tools, and functions that manage class materials and activities (p.2).

Morgan (2003) excludes other technologies such as presentation software (e.g. PowerPoint™), which may be incorporated or linked to the curriculum management system (CMS). Rapuano and Zoino (2006) offer a similar description of learning management systems.

The primary objective of the LMS is to manage learners, keeping track of their progress and performance across all types of training activities. The LMS manages and allocates learning resources such as registration, classroom and instructor availability, instructional material fulfillment, and online delivery (Rapuano and Zoino, 2006, p. 1757).

Rapuano and Zoino (2006) further refine the description of LMS systems to include learning content management systems (LMCS). The LCMS system adds the ability of the instructor to create, modify, and manage content. In addition to the authoring capabilities, the LCMS offers analytical data about the students’ habits such as navigation, learning preferences, and performance.

International standards for LMS emerged in 2003 to improve conformity among the various LMS vendors (Coates et al., 2005). Regardless of the technical jargon used to describe online LMS systems, five standard components of the LMS should include: (1) account management, (2) security protection, (3) collaborative learning, (4) student activity tracking, and (5) feedback collection (Rapuano & Zoino, 2006).

Summary of Distance Learning Technologies

In 1972, Stanford University completed a feasibility study funded by NASA about the cost optimization of satellite and ground systems for continuing professional
education and medical services. The study identified millions of professional users that would benefit from a more efficient information gathering and dissemination telecommunications system. The system would have the potential to reach professionals in urban and rural areas serving education, medical services, business teleconferencing and interactive computer services. The report predicted probable architecture of future networks using satellite and improved ground telecommunication systems. “It seems probably that multi-access, multi-computer schemes will be used in the future, hopefully with a single user interface to disguise the heterogeneity of the system” (Dunn & Lusignan, 1972, p. 14).

Nearly 25 years later, a report by Rubiales, Steely, Woller, Richardson, and Smith (1998) summarized distance learning in a brief and concise manner. In its earliest form, distance learning was accomplished through print technologies for physical delivery by mail. Since the early use of mail delivery, the rise and fall of various technologies include:

- Live sound over short-wave radio, telephone, and, more recently, audio and video conferences;
- Recorded sound in the form of phonograph records, audiotapes, compact discs, and more recently, downloaded files or streaming video over the Internet;
- Photography, in various formats such as sixteen and eight millimeter movies, slides, and filmstrips;
- Television in the form of traditional airborne transmission, VHF and UHF, microwave, or satellite television, videotapes, videodiscs, and now video imaging over the Internet; and
- Computers in the form of mainframes, teaching machines, personal computers with portable discs, modern transmission over the phone lines, and now wireless
modems and the Internet including file transfer protocol… electronic mail, and the Worlds Wide Web (Rubiales et al., 1998, p. 32).

Similar to Rubiales et al. (1998), researchers Howard and Discenza (2000) observed the impact of audio, video, and the computer on distance education over time. Howard and Discenza (2000) coined the term operationalism, which describes how course content is delivered and the flow of communication between the teacher and learner. The communication flow may be simplex, half-duplex or full-duplex. Simplex is one direction only communication. Half-Duplex is one direction at a time, sometimes referred to as asynchronous. Full Duplex is synchronous communication, both directions simultaneously. According to Howard and Discenza (2000), the operationalism of communication flow dictates how the course will be offered and the types of interactions between the teacher and student. Unlike face-to-face communication, distance learning is not all interactive. Therefore, instructors must consider how to mitigate for bi-directional instantaneous communications, especially in how students will be assessed (Howard & Discenza, 2000).

In reviewing the literature about the historical development of distance education, a brief summary serves as a precursor to the next section, which is Growth of K-12 Online Learning and Virtual Schools. Chapter II described the growth of online learning made possible largely due to advancements in technology in the late 20th century and early 21st century. Improvements in wireless communications, satellite systems, faster computer processors, secure email, and user-friendly LMS systems have enabled rapid growth of online courses and public virtual schools serving students in grades K-12. Consumers are able to access the Internet in remote geographic regions on a variety of
computing devices (e.g., laptop computers, tablets computers, smart phones, and gaming consoles). In addition to improved access to the Internet, the computing devices are more affordable with widespread distribution. Technology has improved virtual classroom components such as curriculum, instruction assessment, and socialization. Online administrative components add utilities designed to organize student information, track student assessment, reveal web page analytics, and log time on task. Virtual teachers are able to deny or approve advancement through the curriculum, hold live online classroom sessions, use a variety of interactive classroom tools, and supplement lessons with web-based resources to address a wide-range of abilities from remedial students to gifted learners.

Reflecting on the historical development of distance learning technologies, equity issues included access to innovations. Online learning is an innovation with desirable consequences and undesirable consequences for individuals or social systems according to Rogers (2003). The functionality of the technological innovation determines if the consequences are desirable or undesirable. Rogers (2003) explains the functionality of using the Internet by adopters and rejecters of new ideas such as the emergence of online learning and virtual schools.

Everyone in the system is usually touched by the consequences of a technological innovation, whether they are adopters or rejecters. An example is the Internet, which advantages certain individuals and disadvantages others through the digital divide … (Rogers, 2003, p. 443).

The next section reviews the historical growth of online learning and virtual schools from a governance perspective. The growth of K-12 online learning focuses
primarily on public virtual schools. The individuals enrolled in virtual schools are typically students accessing the Internet directly from their own homes.

**Growth of K-12 Online Learning and Virtual Schools**

Distance education experienced rapid change in the late 1980’s with fast asynchronous technologies coupled with synchronous technologies made possible by the Internet and dominance of the World Wide Web (Harper et al. 2004; Schrum, 2004). Community colleges and universities offered fully online courses before emerging in K-12 public schools. Harper et al. (2004) reported heavy involvement in virtual classrooms by universities and corporations beginning in the mid-1990’s. According to Harper et al. (2004), the total enrollment in online courses between 1997 and 1998 was 1.6 million students. New certificates and degree programs followed the growth of online enrollments. “Higher education institutions were able to expand access, alleviate capacity constraints, capitalize on emerging market opportunities, and catalyze institutional transformation” (Harper et al., 2004, p. 590).

**Emergence of Fully Online K-12 Public Schools**

Initially, elementary and secondary schools began using computers to augment traditional classroom learning. Access to school computers and the Internet were technological barriers until the late 1990’s. As more schools improved access to technology and the Internet, the potential for online learning grew rapidly. Some of the earliest online schools were reported in Canada and the United States in 1997. The Canadian schools served students in rural areas. Litke (1998) reports 20 virtual school programs in Alberta Canada. Approximately half of these programs contained fewer than
50 students affiliated with an existing school. Only four of the programs were stand-alone virtual schools. The growth of online learning nationally and in the state where the case study school resides is examined next.

National Growth of K-12 Online Learning

The Florida Virtual School was launched in 1997 as a full-online curriculum non-diploma program (Clark, 2001). The Florida Virtual School offered online courses to state resident students and students from other states. Many other states offered online school courses prior to the Florida Virtual School. Clark (2001) found at least 14 states had virtual schools recognized by the governor, legislature or state agency. Table 5 identifies early state adoptions of virtual schools in the U.S., including year funded, organizational status, and profile description. Many of these virtual schools offered a limited number of core courses or AP courses primarily targeting high school students.

Clark (2001) estimated virtual school enrollments by means of web research, literature review, and personal contacts. The study by Clark (2001) estimated 40,000 to 50,000 students enrolled in virtual schools for the 2001-2002 school year (p.9). According to Clark (2001), few details of early virtual school were found in the review of literature from the 1990’s.

During the next decade, two rapidly growing virtual schools emerged in the United States, the Virtual High School (VHS) based in Georgia, and the Florida Virtual School (FLVS). In 2005-2006, a research study by Roblyer, Davis, Mills, Marshall, and Pape (2008) reported “7,608 students registered in Virtual High School (VHS) courses” (p. 95). An Internet search of the VHS web site reported over 18,000 students enrolled
Table 5

*Early State Adoption of Virtual Schools in the U.S.*

<table>
<thead>
<tr>
<th>Year founded</th>
<th>Organizational Status</th>
<th>Profile Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utah - 1994</td>
<td>State Education Agency Unit</td>
<td>The electronic High School began in 1994 funded by the State Office of Education. It acts as a course broker for high school courses offered through interactive television, public television and online. It offered 29 online core courses and concurrent enrollment courses were developed.</td>
</tr>
<tr>
<td>Hawaii – 1996, re-established as a charter school in 2000.</td>
<td>State Education Agency Unit</td>
<td>When federal funding ended for the state department of education’s Hawaii E-School in 2000, the Hawaii E-Charter was developed to replace it. The first statewide charter school, E-Charter offered a full locally developed curriculum and approved diploma study and is free to any qualified Hawaii school student.</td>
</tr>
<tr>
<td>Florida - 1997</td>
<td>Free-standing, funded through legislation line item.</td>
<td>The Florida Virtual School (previously Florida High School/Florida Online High School), begun in 1997, has been state funded as an independent entity. It offered a full online curriculum but not a diploma. FLVS is the largest virtual school in terms of enrollments, it acts as a course provider for districts in Florida and other states.</td>
</tr>
<tr>
<td>Alabama -1999</td>
<td>Operated as a consortium, state education agency, a partner.</td>
<td>The Alabama Online High School began pilot instruction in the fall of 1999 and became available statewide in the fall of 2001. AOHS is a joint effort of the state education agency, University of Alabama, local schools and state education associations, funded through a federal grant.</td>
</tr>
</tbody>
</table>

(table continues)
<table>
<thead>
<tr>
<th>Year founded</th>
<th>Organizational Status</th>
<th>Profile Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Michigan - 2000</strong></td>
<td>Free-standing, funded through legislation line item.</td>
<td>The Michigan Virtual High School, established by the legislature as a part of the private nonprofit Michigan Virtual University, began instruction in fall 2000 with AP courses and added 20 core and elective high school courses in fall 2001.</td>
</tr>
<tr>
<td><strong>Arkansas - 2000</strong></td>
<td>Operated as a consortium, state education agency, a partner.</td>
<td>Operations began in Spring 2000 for the Arkansas Virtual High School, which currently offered 13 locally developed core curriculum courses as a supplemental instruction for students attending public schools. Operated by an education cooperative with the state education agency funding.</td>
</tr>
<tr>
<td><strong>Kentucky - 2000</strong></td>
<td>State Education Agency Unit</td>
<td>The Kentucky Virtual High School began operation in January 2000 within the state department of education, with legislative funding. It provides supplemental pre-college curricula for public and middle schools, taught by certified regular K-12 staff. It offered over 40 courses, including 14 AP courses.</td>
</tr>
<tr>
<td><strong>Louisiana - 2000</strong></td>
<td>State Education Agency Unit</td>
<td>The Louisiana Virtual Classroom was operated in the fall 2000 by the state department of education with funding from the State Distance Learning Network. LVC follows the Concord VHS bartering model and offered 11 shared courses among participating high schools.</td>
</tr>
<tr>
<td><strong>North Dakota - 2000</strong></td>
<td>State Education Agency Unit</td>
<td>The North Dakota Division of Independent Study began offering online high school courses in fall 2000, and eventually offered over 70 courses and an approved diploma.</td>
</tr>
<tr>
<td>Year founded</td>
<td>Organizational Status</td>
<td>Profile Description</td>
</tr>
<tr>
<td>--------------</td>
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<td>---------------------</td>
</tr>
<tr>
<td>West Virginia - 2000</td>
<td>State Education Agency Unit</td>
<td>The West Virginia Virtual High School within the state department of education began in the fall of 2000, with legislative and local district funding. WVHS offered over 40 online courses at all K-12 levels, developed and delivered by external providers are brokered by WVHS to participating districts.</td>
</tr>
<tr>
<td>Illinois - 2001</td>
<td>Operated as a consortium, state education agency, a partner.</td>
<td>The Illinois Virtual School, operated by a broad consortium, began offering instruction in January 2001, with a focus on AP curriculum.</td>
</tr>
<tr>
<td>New Mexico - 2001</td>
<td>State Education Agency Unit</td>
<td>The New Mexico Virtual School, established by legislative act within the Department of Public Education, began instruction in January 2001 providing AP course offerings, and eventually offered a full high school curriculum developed by an external provider. It has a long-term focus on all K-12 levels.</td>
</tr>
<tr>
<td>Maryland - 2002</td>
<td>State Education Agency Unit</td>
<td>The Maryland Virtual Learning Community will debut in fall 2002, operated by the state education agency. Its initial focus was on high school instruction.</td>
</tr>
<tr>
<td>Idaho – 2002, to be established as a statewide charter in 2002.</td>
<td>State Education Agency Unit</td>
<td>The Idaho Virtual High School, established through H.B. 317 in spring 2001, begun as a state-operated charter school in which districts would receive the same state funding for in-district students who enroll.</td>
</tr>
</tbody>
</table>

Adapted from Clark (2001), Virtual Schools: Trends and Issues, A Study of Virtual Schools in the United States. Western Illinois University, Macomb, p. 11-12. Permission to reproduce and disseminate granted by ERIC, publisher.
from at least 600 school districts in 2014-2015 (The Virtual High School, 2015). The VHS model is a collaboration of member schools. A description of the VHS model follows:

VHS uses a cooperative model in which each instructor is released by his/her school for one period each day to teach a VHS course. In exchange, the school is able to register twenty-five students in any of the over 200 VHS “NetCourses” or Web-based courses. Teachers receive online training in how to teach NetCourses effectively. Each school also provides release time for a site coordinator who acts as a local VHS administrator, guidance counselor, and technical advisor for students taking NetCourses (Roblyer et al., 2008, p. 95).

See Figure 1 for Virtual High School enrollments by grade category. VHS reports 3% of their enrollments in middle school with increasing numbers of enrollments as students advance through grades 9-12 (The Virtual High School, 2015). The majority of VHS enrollees were part-time students taking one or more courses participating from districts in the U.S. and globally. FLVS offers supplemental course enrollments and full-time virtual student enrollments. The online courses are offered to Florida’s resident students at no cost. Students outside of Florida may take FLVS online courses and pay tuition. FLVS is among the first full-time virtual schools offered in the U.S. According to Watson et al. (2004), FLVS initiated a full-time K-8 virtual school with enrollment limited to 1000 students in 2003. The school expanded to a full-time curriculum, serving students in grades K-12 by 2007. During the 2013-2014 school year, FLVS served 58 of Florida’s 67 school districts. Over 200,000 courses were delivered to state, national, and international students in 2010 (Mansera, 2014). According to Mansrea (2014), FLVS offers over 125 courses serving students in high school students and middle school.
Figure 1. Virtual High School (VHS) Enrollments by Grade Category 2014-2015. Adapted from The Virtual High School [Web Log Message] Snapshot of the Virtual High School, (2015, October 17).

FLVS provides supplemental and fully online learning options for students in grades K-12. Watson et al. (2014) report “over 2 million course completions since FLVS opened in 1997” (p. 88). Enrollments in one semester supplemental online courses, including FLVS, franchises, and district programs dropped by 4% to 410,000 in school year 2013-2014. The decrease in enrollment may have been due to SB1512, a legislative act in 2013 changing the funding for all schools including traditional and virtual schools. Excluding district and other online providers in the state revealed a larger drop in enrollment for student attending FLVS:
FLVS is by far the biggest state virtual school program and accounts for over 50 percent of all course enrollments in state virtual schools nationally, but its course enrollments dropped 8.1% to 377,508 in school year 2013-2014. The reduction on FLVS enrollments accounts for the drop in national numbers overall. Excluding FLVS, total enrollments in all other virtual schools increased 9.7% in SY 2013-14 (Watson et al., 2014, p. 27).

As of 2014, over thirty states have fully online schools with 315,000 students in attendance (Watson et al., 2014, p. 5). Watson et al. (2014) presented the following statistics describing the growth of online learning:

- Thirty states have fully online schools operating across the entire state. In school year 2013-2014, an estimated 315,000 students attended these statewide fully online schools, a year over year increase of 6.2 percent.

- State virtual schools are operating in 26 states, providing supplemental online courses to students across their states. In school year 2013-2014, they collectively served 740,000 course enrollments, about the same amount in school year 2012-2013.

- Eleven states have course choice policies or programs that are allowing students to choose online courses from one or more providers.

- A most recent development is combining online instruction with required attendance at a physical school.

- Digital learning activity across private sector ranges from fully online schools to supplemental online courses, (p.5).

As of 2015, the annual *Keeping Pace Report* from Watson, Gemin, Pape, and Vashaw, (2015) estimated 462,025 K-12 students taking online courses. The average course load per student is 1.77. In 2015, the *Keeping Pace Report* included private companies that sell online courses to districts nationwide. A much larger enrollment was estimated from this first-time calculation.

Based on extrapolations from these supplier surveys, and additional data available from a few states (published reports and state data bases), several school districts, and other sources, we estimate another 2.2 million students taking a total of about
3.9 million online courses. These are in addition to state virtual school numbers. Together, they sum to about 4.5 million supplemental online course enrollments (Watson et al., 2015).

The *Keeping Pace Report* by Watson et al. (2015) estimated the percentage of students taking supplemental online courses by grade level. Students in grades 9-12 represented 84% of all students taking supplemental courses. Students in grades 6-8 represented 14% of course enrollments and grades K-5 represented 2% of course enrollments. Likewise, the *Keeping Pace Report* provided data on the percentage of students enrolled as full-time virtual students. Students in grades 9-12 represented 46% of all full-time virtual students. Students in grades 6-8 and K-5 were nearly equal at 28% and 26% respectively (Watson et al., 2015, p. 20).

National estimates of online courses by subject area apply to supplemental course enrollments. Watson et al. (2015) estimated 73.9% of students to be enrolled in core subjects (i.e., language arts, math, science and social studies), while 26.1% of students took other course subjects (i.e., arts, world languages, health/PE, and other electives).

The actual number of full-time virtual students in the U.S. has been elusive. “No recent federal data set exists for online, or distance courses in K-12 education” (Watson, 2016, para 5). According to Watson (2016), the estimates of fully online students are confounded by the number of part-time virtual students taking supplemental courses and blended courses from a variety of programs and virtual schools.

**Growth of K-12 Online Learning in the Case Study’s Resident State**

As of 2015, six types of online learning providers operate in the state where the virtual school study setting is located. The different types of providers were:
1. District-to-District Online Learning

2. Community Colleges and Universities Offering Online Courses to High School Students

3. Community College Operated Statewide High School Distance Learning Program

4. State Education Agency Online Program

5. University AP Academy Online Program

6. District-Operated Statewide Virtual Schools

A brief description of each type of statewide online course provider is described in the following sections.

**District-to-district online distance learning.** The researcher was a former school superintendent prior to retirement. As a former district administrator, the researcher was familiar with sharing teachers, students, and facilities as a strategy to increase access to courses and improve economic efficiency in the state where the virtual school study setting resides. The State Code allows two or more districts to jointly employ and share services of any school employee, or acquire and share the use of classrooms, laboratories, equipment and facilities. School districts may use various sharing plans to maintain courses in kindergarten through the twelfth grade. Many school districts have shared teachers and students using distance learning over the past 30 years. Some districts practice distance learning using video conferencing technologies such as the state’s publicly operated fiber optics communications network and commercial vendors such as Polycom™ and Adobe Connect™. These video conferencing opportunities may be augmented with other online resources such as email and web-based curriculum
management tools (e.g., Edmodo™). In some cases, distance-learning technologies are blended with face-to-face instruction. The state education agency (SEA) tracks information for district-to-district sharing arrangements qualifying for supplemental funding. In general, supplemental funding is limited to physical presence of teachers and students shared between districts. An exception is a small incentive for qualifying courses offered through the state’s fiber optic network.

Community colleges and universities offering online courses to high school students. As a former district administrator, the researcher found community colleges may offer online courses to high school students for partial fulfillment of their certificate programs, associate degrees and various career academies. The state’s 15 community colleges serve high school students within their service area. According to the one community college website, over 30 online courses were delivered to high school students in the fall of 2016 serving over 50 school districts.

The career academy opportunity is described by the SEA on their website. Career academies are programs offered to high school students through an agreement between their high school and a community college. These programs focus on career technical education. Online courses and online activities support career academies and K-12 career education in the state. Activities range from virtual field trips for elementary students to online employment certification for high school students sponsored by business and industry.

Many of the state’s universities and community colleges offer supplemental online courses to high school students for college credit while attending high school. For
example, community colleges may offer concurrent credit, which is earning college credit and high school credit as agreed upon by partnering school district. The state’s post-secondary enrollments options (PSEO) act allows qualifying high school students to take college credit courses while still enrolled in high school. The PSEO courses may be offered on campus or as an online course.

Community college operated statewide high school distance learning program. A third type of online program in the resident state of the virtual school study setting was established in 2007. The online program targeted high school students needing online courses for advancement, credit recovery, and to resolve scheduling conflicts. The community college-based program served 1,144 course enrollments in 2013-2014, a 35% increase over the previous year (Watson et al., 2014, p. 103).

State education agency online program. In 2004, the state education agency (SEA) created online courses for high school students (Watson et al., 2014). The SEA online program does not supplant existing high school courses offered by school districts. Rather, the SEA online program supplements high school courses that are not available or not accessible to the student. The online courses include highly qualified online teachers. The participating school districts are responsible for determining the course credit and final grades received by the students based on the virtual teacher’s recommendation. The SEA’s online program has used state funding sources to contract with online teachers. The online teachers provide instruction to students using the state’s fiber optic video conferencing network and Internet web-based resources. Each participating school district provides a site coordinator to assist the students with registration, technology
support, on-site testing services, and crediting grades. There were 899 student enrollments in the SEA online program for school year 2014-2015 (Watson et al., 2015, p. 78).

**University AP academy online program.** In 2001, an online advanced placement (AP) academy was initiated with state and federal funds to offer AP courses to high school students (Watson & Ryan, 2007, p. 100). The AP Academy provides AP college courses for high school students without access to such courses in their districts and for eligible middle school students interested in AP preparatory courses. Students are recommended by their districts based on ability to handle the academic rigor of a college-level courses as well as self-discipline and motivation. Students may qualify based on the district’s talented and gifted criteria. During the 2015-2016 school year, there were 1,477 student registrations participating in 1820 exam AP review modules. According to an annual report from the university in August 2016, participation in AP Exam review by content area was English 373 students, math 288 students, science 212 students, social studies 941 students, and world languages with 6 students. The annual report presented plans to add Introduction to Computer Sciences (grades 6-9), AP Computer Science (grades 9-12), AP Computer Science Principles (grades 9-12), and Spanish I (grades 6-8) for the 2016-2017 school year. Middle School participation in the AP online academy is recommended for gifted students scoring in the 95th percentile and above on the statewide assessment, and above the 50th percentile on the Excel assessment for their grade level. The 2016 Annual Report to the legislature indicated 501 students in grades 6-12 taking online courses with the AP Academy during the 2015-2016 school year.
District-operated statewide virtual schools. Two school districts introduced fully online statewide schools commencing with the 2012-2013 school year. The legislature responded with rules governing their existence and growth. More specifically, statewide enrollment was limited to no more than one eighteen one-hundredths of one percent (.018%) of the total statewide enrollment of all students, estimated to be about 850 students. Open enrollment was limited to no more than one percent of the resident district’s students. Students may open enroll (i.e., tuition-free transfer) into the two districts operating the statewide virtual schools within the enrollment cap. No other school districts were allowed to start-up virtual schools serving students outside of their district’s boundaries. The SEA was mandated with the responsibility to survey the virtual school participants and report data collected annually to the legislature. Survey data includes, but is not limited to academic performance, demographic characteristics, reason for entering or exiting enrollment in the school, progress towards graduation, involvement in extracurricular activities, performance on annual statewide assessments and conducting parent-teacher conferences. The original legislation included a three-year sunset, which expired in 2015. Legislation reinstating the sunset date of July 2018 for both virtual schools was line item vetoed by the Governor following the 2016 Legislative Session. The initial years of the virtual schools were exposed to a variety of issues relating to school choice, use of state funding, academic quality concerns and the close monitoring of academic achievement.

The combined enrollments for the two statewide virtual schools was 302 students in their maiden year (i.e., SY 2012-2013) and increased 78% in school year 2013-2014.
with 539 combined enrollments (Watson et al., 2013; Watson et al., 2014). The SEA reported a combined virtual school enrollment of 832 students to state legislature on February 4, 2016 for the 2015-2016 school year.

**Multiple Roles of K-12 Online Learning**

Online learning serves learning institutions and their students in many ways. In some cases, the roles of online learning are interventions designed for short durations. In other cases, online learning is how learning institutions deliver courses and/or comprehensive diploma programs. In many states, students have a choice between traditional learning opportunities in physical brick and mortar buildings or virtual attendance with an online presence from remote locations. K-12 public school students may have the option to participate in part-time, full-time, and blended formats based on the policies of state departments of education and the policies of public online school providers.

**Fully Online or Supplemental Course Instruction**

Piccianno and Seaman (2009) conducted a national survey of K-12 administrators to determine the enrollment trends of online enrollments. For purposes of the survey, the following definitions were used.

- **Fully online course** – A course where most or all of the content is delivered online, and typically has no face-to-face meetings.
- **Blended/hybrid courses** – A course that blends online and face-to-face delivery, and where a substantial proportion of the content is delivered online, sometimes uses online discussions and typically has few face-to-face meetings (Piccianno & Seaman, 2009, p. 5).
Highlights from the 2008 national survey found three quarters of the responding school districts were offering online or blended courses. Of the 876 respondents, “70 percent had one or more students enrolled in a fully online course and 41 percent had one or more students enrolled in a blended course” (Piccianno & Seaman, 2009, p. 1).

As of 2018, there were five statewide online programs/schools providing full online and/or blended instruction in the state where the virtual school study setting resides. See Table 6 for each statewide provider by organizational status, year established, grade levels served, and enrollment data for school year 2013-2014. Each of the five statewide online providers is committed to educational instruction offering supplemental courses or full-time online schools.

Meeting the Specific Needs of Student’s Role

Schools use online and blended courses for gifted education, credit recovery, remedial instruction, acceleration through the curriculum, and to access courses not readily available to meet the learner’s needs. Picciano, Seaman, Shea, and Swan (2012) found five reasons for students taking online or blended courses, based school administrators’ responses to a survey in 2005-2006 and 2007-2008:

1. Offering courses not otherwise available at the school.
2. Meeting the needs of specific groups of students.
3. Offering Advanced Placement or college-level courses.
4. Permitting students who failed a course to take it again (e.g., credit recovery).
5. Reducing scheduling conflicts (p. 128).
Table 6

*Statewide Online Provider, Organizational Status, Year Established and Enrollment Data for School Year (Case Study Resident State)*

<table>
<thead>
<tr>
<th>Statewide Online Provider</th>
<th>Organizational Status and Year Established</th>
<th>Grade Levels Served</th>
<th>Enrollment Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online AP Academy</td>
<td>University operated, established in 2001</td>
<td>6-12</td>
<td>501 student enrollments SY 15-16</td>
</tr>
<tr>
<td>State Education Agency Supplemental Online Program</td>
<td>SEA operated, established in 2004</td>
<td>9-12</td>
<td>899 student enrollments SY 14-15</td>
</tr>
<tr>
<td>Community College Supplemental Online Program</td>
<td>Community college operated, established in 2007</td>
<td>9-12</td>
<td>1144 course enrollments SY 13-14</td>
</tr>
<tr>
<td>Statewide K-12 Virtual School (1)</td>
<td>District operated, established in 2012</td>
<td>K-12</td>
<td>527 Full-time Students SY 15-16</td>
</tr>
<tr>
<td>Statewide K-12 Virtual School (2)</td>
<td>District operated, established in 2012</td>
<td>K-6 (Yr. 1) K-12 since 2013-2014</td>
<td>305 Full-time Students SY 15-16</td>
</tr>
</tbody>
</table>

Enrollment data taken from Watson et al. (2014). Keeping pace with K-12 digital learning: An annual review of policy and practice. The Evergreen Education Group. Enrollment data for the Statewide Virtual Schools is from SEA reports.

Likewise, researchers Watson et al. (2015) found online learning as an emerging solution to meet specific school challenges and student needs, including:

- Alternatives for scheduling conflicts
- Highly qualified teachers in subjects where teachers were not available, particularly Advanced Placement
- Access to hard to find courses, especially in rural or inner cities
• Electives and other accelerated options for college bound students

• Flexibility for athletes, homebound students, those in the arts, dropouts, and pregnant or incarcerated students

• Credit recovery programs for at-risk students

• Solutions for small class sizes and emergency shortfalls in teachers (Watson et al., 2015, p. 25).

The study by Watson et al. (2015) cited a national survey finding 47% of students in grades 9-12 pursue online learning to access courses not offered at their school and 43% choose online courses to work at their own pace. Students in grades 6-8 enrolled in online courses to receive extra help (Watson et al. 2015).

Barbour and Reeves (2009) described benefits of virtual schooling meeting specific needs of students. These specific needs include, “learning styles of students, flexibility in both scheduling and geography, opportunity for students who are not physically able to attend brick-and-mortar school, and higher levels of motivation” (Barbour & Reeves, 2009, p. 407). Equity and access to high quality courses may be important to small rural schools and to students disadvantaged due to ethnicity along with those who are homebound, hospitalized, incarcerated or assigned to alternative programs (Barbour & Reeves, 2009).

The research on meeting student needs from Barbour and Reeves (2009); Picciano et al. (2012); and Watson et al. (2015) support the primary aims and purposes of the five statewide online providers found on Table 6. The following aims or purposes of the five statewide programs/schools were adapted from the providers’ web pages or cited research.
The university operated online AP academy specifically serves eligible high school students with AP Advanced Placement Courses and AP exams. The academy provides enrichment workshops and advance course opportunities for eligible student (e.g., talented and gifted students) from grades 6 through 12.

The SEA online program serves students needing courses not available in local school districts, students with scheduling conflicts, and permitting students who failed to take courses over again. The program also serves dual enrolled homeschool students and students unable to attend a brick and mortar traditional school.

The community college operated online program is aimed at high school completion. The supplemental program offers student with online courses for advancement, credit recovery, and to resolve scheduling conflicts.

The statewide virtual schools deliver K-12 courses and high school diplomas. According to research from Roblyer (2006), students enroll in virtual schools for a variety of reasons ranging from acceleration for advanced courses for some students to credit recovery for others. In some cases, Roblyer (2006) found students to enroll in virtual schools “when their own school lacks the resources to offer the courses they want or need, or when physical handicaps or disciplinary problems prevent them from attending a face-to-face classroom, or simply because they want the flexibility – or sometimes the invisibility – that they feel virtual schools offer” (p. 32).

Online Assessments Role

Online assessments are widely available for educational program placement, proficiency and aptitude levels, college entrance exams, and summative or formative
assessments at all grade levels. Researchers Cassady and Gridley (2005) examined test anxiety and performance of students using online formative and summative assessments. This study examined graduate students’ perceptions of online vs. pencil-paper formats. Cassady and Gridley (2005) found no significant difference between traditional paper-pencil assessments and online assessments. Some of the flexibility offered by online assessments may reduce test anxiety. Rationale for reducing anxiety is described by Cassady and Gridley (2005).

Specifically, (a) they can complete exams at different times of the day to fit their convenience; (b) they can potentially complete the tests in different locations if the test is not a required “closed-book” exam; and (c) unless there is an explicit reason for a time limit, students can take as long as needed to complete the exam (Cassady & Gridley, 2005, p. 9).

Bocij and Greasley (1999) found students prefer online assessments due to improved focus on test items and less concern about time consuming handwritten responses. Online assessments may be simple self-checks for understanding or demand students to travel to a particular site for a proctored test.

Administrative Management Role

A variety of administrative tasks serve students, teachers, and administrators using sophisticated software and apps. Some of the resources accompanying the instructional content include course sequencing, educational assessments, tracking learning progress and authorization to advance the learner in the curriculum (Rapuano & Zoino, 2006). The software needed for online programs is organized in two basic forms, LMS systems, and student information systems (SIS) according to Watson (2007). LMS software generally focuses on communication tools, grading and delivery of course
content, “Course content may include text, graphics, video, audio, animations and other interactive tools” (Watson, 2007, p. 10). The LMS offers online assessments that can be automatically graded. The SIS system is used to track student demographics, contact information, assessment data, and support data-driven decision-making for individualized student interventions. Communication is often tracked by these online management tools offering a threaded record of email messages, and logs for synchronous audio and telephone conversations. Policies may be enforced regarding timely completion of assignments and time spent completing each lesson using online administrative management tools. Communication requirements are important since the students are not physically present with the teacher. “Programs may require that students be in touch with their teachers three times per week, or that teachers check email at least once every school day and respond the same day (Watson, 2007, p. 10).” Online teachers and administrators mitigate distance and immediacy of communication in the virtual school environment using LMS and SIS administrative online software.

In the next section, characteristics of online learners and their experiences are explored.

**Reasons Students Enroll in K-12 Virtual Schools**

There are many reasons why online learning is appealing to K-12 students (Picciano et al., 2012; Watson et al., 2015). Some of these reasons are improved access to courses, accelerated learning, learning at a slower pace if needed, flexibility to mediate conflicting interests or barriers, and meeting the unique needs of underserved students. Many students appreciate the freedom and autonomy offered by virtual courses (Rice,
These general reasons cast a wide net applicable to K-12 students seeking supplemental and/or full-time virtual schools. A dissertation by Kenyon (2007) shared nine reasons for students selecting virtual schools from early research in Canada. The most common reason was a negative view of school life in conventional settings.

“The most common reason for selecting a virtual program was dissatisfaction with conventional schools. Most often, the students refer to the difficulties associated with peer pressure, student conduct, and teachers not caring about the students to the degree that they would like. For them, in contrast to conventional schools, an effective virtual school would ensure that: they will not be distracted by other students; they will not have to tolerate immature and hurtful behavior either aimed at themselves or others; teachers will see them as individuals and provide individualized help; they can work at their own speed - more quickly and/or more slowly as required for content mastery; they can choose with whom to socialize; and they will be more academically challenged (Barker & Wendell, p. 32; Wagner et al., 2004),” (as cited in Kenyon, 2007, p. 21).

Some conventional school administrators would agree with the notion of one glove fits all is not amenable to every student. “In some cases, student needs are satisfied with individual attention, flexible schedules, and less exposure to social challenges, especially in the secondary school setting” (Kenyon 2007, p. 23). The appeal from students and parents for virtual schools includes:

“The self-directed nature that enhances independent learning; individualization; a perception of better preparation for post-secondary education and life-long learning; increased personal responsibility; flexible timetabling; the opportunity to succeed, having experienced failures in other learning systems; fewer distractions; equal opportunity to participate; development of technological competencies; quick feedback and instant work records; no geographic barriers; and a greater opportunity for parental involvement (Barker, 2001),” (as cited in Kenyon, 2007, p. 22).

The complete list of nine reasons for students choosing virtual schools from Kenyon (2007) by topic are (1) dissatisfaction with conventional schools, (2) benefits of self-paced instruction, (3) timetabling flexibility in the face of competing priorities,
positive reputation for online learning, (5) potential to increase student achievement, (6) access to technology, (7) access to teachers, (8) convenience of schooling and communications, and 9) pragmatism, including the ability to maintain employment.

A phenomenological research study by Green (2013) summarized the reasons of 12 students attending four different virtual high schools. In some cases, an individual gave two reasons for attending a virtual school. Green (2013 listed ten reasons for attending a virtual high school. These reasons were related to

- health problems,
- work and desire to get ahead (2 responses),
- wanted to try something new,
- lack of quality schools in the area (4 responses),
- parent stationed abroad,
- previously homeschooled (three responses),
- bullying in middle school,
- safety (3 responses),
- desire for personalized education, and
- desire for more flexibility (p. 66).

A study by Nehr (2009) examined the impact of online learning on middle school students. Although the study does not distinguish if the students are full-time or taking supplemental online courses, the reasons for taking online courses were consistent with the related literature. In Nehr’s (2009) research, some students looked to online courses due to local school budgets constantly under threat of reduction. Other students
participated in online courses to avoid bullying and overcrowding. According to Nehr (2009) “a number of students were homeschooled where their parents served as tutors and desired subjects where parents are not as strong” (p.48).

Among students in high school and community colleges, the choice for distance learning appears to be related to a higher need and desire to control their learning environment, while students preferring face-to-face had a higher need for interaction with instructors and class members (Roblyer, 1999). In respect to credit recovery, students with poor academic success in the traditional classroom may be destined for dropout and failure in the virtual school setting (Roblyer 1999; Roblyer 2006; and Roblyer et al., 2008).

For some students, the reasons for enrolling in virtual schools may be related to family and school relationships. Marchant, Paulson and Rothlisberg (2001) studied the relationship of middle school students’ perceptions of family and school context with academic achievement. In the school context, students prefer a school climate nurturing a state of well-being. Well-being is perceived as having competent teachers, a safe learning environment and responsiveness from teachers and parents. In the family context, Marchant et al. (2001) reviewed two factors supporting achievement in school. Family factors include parenting styles and parental involvement in school. Parenting styles include:

- **Authoritative Parenting Style** – defined by firm discipline practices, and foster self-regulatory behavior and by high levels of warmth and nurturance.

- **Authoritarian Parenting Style** – strict disciplinarians who display little warmth and affection.
- Permissive Parenting Style – lax disciplinarians who may or may not show warmth and affection (Marchant et al., 2001, p. 506)

Authoritative parents that encourage self-regulatory practices and emotional support have children with higher levels of academic achievement compared to strict authoritarian or permissive parents (Marchant et al., 2001).

Parental involvement is another family factor resulting in higher levels of student achievement according to Marchant et al. (2001). Gonzalez-DeHass, Willems, and Holbein (2005) examined the relationship between parental involvement and student motivation in traditional schools. Types of parent involvement were identified as “helping with students’ homework, attending school programs, watching the students in sports or other extracurricular activities, helping the student select courses, and keeping abreast of the student’s progress in school” (Gonzalez-DeHass et al., 2005, p. 109). Furthermore, Gonzalez-DeHass et al. (2005), found that parental involvement does not necessarily involve the parent coming to school. Parent involvement away from school may include helping the student with homework, keeping current on student progress in school, and assisting with course selections. The Marchant et al. (2001) study found parent involvement as a family factor which consistently showed an increase in student achievement. Although the studies by Marchant et al. (2001) and Gonzalez-DeHass et al. (2005) do not address virtual school students, some of the reasons given for students and parents choosing virtual schools are consistent with the parents’ perception of greater involvement and the opportunity to exercise their parenting style in a home-based virtual school setting. Unlike conventional schools, the parent has an opportunity to be involved intimately in the education of their child on a daily basis. However, there is little
research literature addressing parental involvement and the different types of parenting styles influence on choosing virtual schools. A quantitative study by Liu, Black, Algina, Cavanaugh, and Dawson (2010) claim the lack of research related to parent involvement and student achievement in virtual schools was partially due to the lack of instrumentation measuring these constructs. Recognizing the need for an instrument, Liu et al. (2010) developed a model instrument to measure the impact of parental involvement on the achievement of virtual school students. The students were from a supplemental online course provider offering core courses, electives, and AP courses. The instrument developed in this study identified 51 items to measure four parental involvement mechanisms: (1) encouragement, (2) modeling, (3) reinforcement, and (4) instruction. A sampling of the 51 factored items for parental involvement mechanisms illustrated a few of the behaviors and actions identified as parental involvement in Figure 2. Responses from 938 individuals to the 51 items were analyzed using confirmatory factor analysis (CFA). According to Liu et al. (2010), the chi square goodness of fit was statistically significant for the hypothesized factor model consisting of parental encouragement, parent modeling, parental reinforcement, and parental instruction. Two factors were found to be relatively weak and removed from the instrument. These weaker items related to general strategies employed to facilitate children doing schoolwork described as “shared thinking related to learning strategies and processes” (Liu et al., 2010, p. 114). The specific factor items were (37) “We teach this child to go at his or her own pace while doing schoolwork,” and (38) “We teach this child to take a
Encouragement mechanism

We encourage this child
1. … when he or she doesn’t feel like doing school work.
2. … when he or she has trouble organizing school work.
3. … to try new ways to do schoolwork when he or she is having a hard time.

Modeling mechanism

We show this child we like it when he or she
1. … wants to learn new things.
2. … tries to learn as much as possible.
3. … has a good attitude.

Reinforcement and Instruction mechanisms

We teach this child
1. … how to check homework as he or she goes along.
2. … how to get along with others in class.
3. … to follow the teacher’s directions.

Figure 2. Sampling of Parental Involvement Mechanisms in Virtual Schooling. Adapted from Liu et al. (2010). The validation of one parental involvement measurement in virtual schooling. Journal of Interactive Online Learning, 9(2), p. 115.

break from his or her work when he or she gets frustrated” (Liu et al., 2010, p. 118). The result of the study indicates the instrument as valid for measuring parental involvement in virtual school learning environments. Further study is needed to compare the parental involvement role among different groups of virtual school students by location and time spent learning partially or fully online (Liu et al., 2010).

Parental reasons for choosing virtual schools were examined by Prosser (2011). This mixed study examined parent choice options for K-8 virtual school education. There were 167 responses to an online survey of parents with children enrolled in a K-8
public virtual school. According to Prosser (2011), “The main responses selected on the survey by parents were the preference to have a more active role in their child’s education preferring the flexibility of online schooling for their child, and viewing the social, moral, and academic climate of [traditional] schools being unacceptable” (p. 131). Bracket added for clarification. Samples of parent comments suggest dissatisfaction with their brick and mortar school (Prosser, 2011):

> On a scale from one to ten, I would rate the public school my son attended a three.
> I don’t care for schools that want perfect little children to fit their mold.
> One size education doesn’t fit most.
> We struggled through and completed the school year (p. 91).

Other parent responses shared desperation to find alternatives to their child’s brick and mortar setting. Concerns included bullying, behavior, and socialization. When asked about bullying, “one mother shared that her son was bullied at school because he was smaller than the other boys and his lunch money was stolen on a daily basis” (Prosser, 2011, p. 92). Meeting special education needs were concerns during interviews with parents. One mother’s comments included Prosser (2011):

> They wanted to separate him from the kids he’d been with for two years and bus him to a different school district to their special education programs.
> One was a double-wide trailer with basically a broom closet in it that would be used for a time out room.
> I didn’t want him on the bus for over two hours per day and I didn’t think locking him up would cure his immaturity (p. 92).

A subgroup of four parents was interviewed by Prosser (2011) for their views of having a child in the local traditional school and another child in the virtual school. According to
Prosser (2011), “Most of these parents interviewed mentioned the importance of school choice in educating their children differently. While another parent believed children need choices in their education, too” (p.95). A few of the parents spoke positively about their children attending the traditional school with involvement in athletics and music programs.

**Defining Successful Online Students**

According to Roblyer et al. (2008), “As may be expected, students’ past ability (e.g., as reflected in GPA) is a significant predictor of current success” (p. 105). The research study by Roblyer et al. (2008) was an attempt to predict success of online students in grades 6-12 by examining student characteristics and environmental variables. Most of the students in the Roblyer et al. (2008) study were in grades 10-12, taking at least one supplemental online course from the Virtual High School (VHS). Success was measured by the final grade in the online course. In addition to course grades or GPA, Ronsisvalle and Watkins (2005) identified measures of student success among K-12 online students.

Many indicators can be used to measure success of online K-12 education programs; fundamental indicators traditionally include academic performance (successful completion), retention (enrolling in future courses), academic achievement (performances and grade distribution), and stakeholder satisfaction (Ronsisvalle & Watkins, 2005, p. 122).

The measures of student success cited by Ronsisvalle and Watkins (2005) appear to be useful in traditional and online school environments. Ronsisvalle and Watkins (2005) suggests a further examination of demographic characteristics and access to technology and technology skills that often times skew the representation of online success. The
study by Roblyer et al. (2008) shared similar concerns about access to technology in measuring the success of online students. High school students taking supplemental online courses while attending traditional high school were asked if they had a computer at home and if time was provided at school for their supplemental online course. These two environmental variables were found to contribute to students’ success. However, these factors had modest results in predicting failure of online students (Roblyer et al., 2008). Successful completion contributes to graduation rates as well. According to Roblyer et al. (2008), graduation rates are often a measure of success when studying dropout problems for online and traditional students.

Another measure of student success in online courses is course evaluations. Holcomb, King and Brown (2004) administered course evaluations to university and graduate students concerning the benefits and drawbacks of distance education. The course evaluation included statements indicating levels of self-efficacy and self-regulation. According to Holcomb et al. (2004), end of year course evaluations were useful with online college students as well as traditional classroom students. This study found prior success with online courses improved self-efficacy while successful completion of online courses enhanced the individual’s self-regulation. Although the university student course evaluation may not be generalizable to K-12 online students, the study does identify two attributes, namely self-efficacy and self-regulation being related to prior academic success. Roblyer et al. (2008) found prior academic success as a significant predictor of online success among high school students. The role of
self-efficacy and regulation on the academic success of K-12 online students is explored in more depth later in Chapter II.

Successful transition of fully online students to college is another potential measure of success. Green (2013) studied the transition of fully online students entering traditional college classrooms. In this phenomenological study, students entering traditional colleges discussed their academic transition and social factors.

Issues that participants noted included getting used to large class sizes, difficulties in communicating with professors and navigating the campus. Participants stated their educational background helped their academic transition. JP stated: “With online schools I had to do my work and push myself, and in college no one pushed you but yourself” (Green, 2013, p. 129).

The participants in Green’s (2013) study felt they were well prepared in their online high school to work on their own and have already mastered time management skills as virtual school students. The overarching essence of transitioning from virtual school to postsecondary was a need for more support and understanding (Green, 2013). The need for support was mostly related to explaining misconceptions to peers and instructors about the validity of being a virtual school student receiving instruction at home. The study by Green (2013) was consistent with the finding from Roblyer et al. (2008) regarding prior academic success, and to Holcomb et al. (2004) about the importance of self-efficacy and self-regulation as attributes of successful online learning.

Another measure of success is standardized testing. Prosser (2011) reviewed literature suggesting general agreement among parents in using standardized test in grades 3-8. However, parents were mixed in their support for student achievement on the basis of standardized test scores. State departments of education use standardized test
data to compare student achievement among schools. In the state where the virtual school resides, the full-time virtual schools report student achievement scores on standardized tests to the SEA, which relays this information and other data to the legislative assembly. A measure of school success would be acceptable levels of academic achievement supporting the continuing operation of the state’s virtual schools.

**Quality Components of Virtual Schools**

Several studies have examined quality components of K-12 virtual schools (Blazer, 2009; Borup, Graham & Davis, 2013; Hughes, McLoed, Brown, Maeda & Choi, 2007; Ronsisvalle & Watkins, 2005; Roblyer, 2006; Roblyer et al., 2008; Volery & Lord 2000; Whiting, 2013; Zhang & Quintana, 2012). In the following sections, components of good virtual schools are reviewed from the perspectives of administrators, teachers, and students participating in educational research.

**Interviews from Administrators of Successful Virtual Schools**

Good virtual schools provide students with no-credit orientation experiences prior to full-time commitment according to Roblyer (2006). Students may be asked to complete checklists, search sample lessons and discussion forums, and take sample exams online. Students may learn policies and etiquette in online communications. In some cases, students may drop the online course without penalty (Roblyer, 2006). The study by Roblyer (2006) included interviews with administrators from successful virtual schools. An administrator from the Florida Virtual School (FLVS) emphasized the importance of student experience away from the computer. Virtual students completed experiments, managed projects and interacted with the community. In addition to these
away from the computer activities, FLVS required a substantial amount of student-to-student interaction. However, student interaction may not be as important for students needing more flexibility to complete the course at a quick pace (Roblyer, 2006).

Providing flexibility for students to work at a different pace in the course calendar reduces the opportunities for student-to-student interaction. In flexible formats, higher levels of student-to-teacher interaction was emphasized. Another experience helpful for online students was talking with the teacher. Roblyer (2006) found that Florida Virtual School (FLVS) required teachers to talk with the student and parent at least once per month. Teachers kept phone logs and recorded the type of feedback students were giving. In addition to verbal communication, emails were read to judge the tone of communication between the teacher and student. Roblyer (2006) identified five common strategies used in successful virtual school programs:

1. Prepare student for success - explain the rigorous demands of online courses, extend drop periods, and provide pre-entry trial experiences.

2. Prepare teachers for success - teachers learn how to operate the classroom platform and effectively monitor and facilitate student work and discussions. Learning to teach online is supported by professional development.

3. Use interactive, flexible course designs – students learn independently and in groups to complete projects with online peers when possible. Hands-on activities away from the computer are emphasized.

4. Monitor and support for teachers – teachers are supported with curriculum and assessments designed with course progress tools. Teachers focus on teaching and timely responsiveness with students. Constant monitoring of teachers accompanies course design expectations and standards.

5. Monitor and support students - flexible scheduling and pacing is tailored to meet individual student needs. Students attend virtual schools by choice fostering a customer oriented attitude involving personal interaction and a culture of collaboration (p. 34).
In addition to interviews from Roblyer (2006), several other studies have identified characteristics of effective online learning. These studies are summarized in the next section.

Characteristics of Effective Online Learning

Blazer (2009) further examined successful delivery on online courses. Strategies for increasing the effectiveness of online learning programs were compiled by from prior research and cited in Blazer (2009, p. 9) as follows:

- “problem-based learning;
- student centered teaching;
- clear expectations;
- concrete deadlines with some flexibility;
- outlines of course requirements;
- a variety of technological approaches, including simulations, manipulatives, and tutorials;
- lessons divided into short mastery sequences so students can progress in stages;
- age appropriate developmental activities, building on students’ accomplishments in and through the cognitive stages;
- a variety of ways through which students can demonstrate mastery of the content;
- sufficient opportunities for practice until mastery is achieved;
- collaboration among students;
- away from the computer activities; and
performance-based assessment” (Association for K-12 Online Learning; Benard et al., 2004; Cavanaugh et al., 2004; Cavanaugh, 2008; International, 2007a; Patrick, 2008; Roblyer, 2006; Smith et al., 2005).

Ronsisvalle and Watkins (2005) also looked at prior research regarding student success online. Based on the success of college students taking multiple online courses, implications for building skills in K-12 education may lead to positive results. Such skills may include “online communication skills, and computer-based note taking” (Ronsisvalle & Watkins, 2005, p. 120). In the following sections, characteristics of the learning environment are explored in more detail. These characteristics include learning to navigate the Web, interactive course learning management systems, building online learning communities, and the persistent role of the virtual teacher.

Learning to Navigate Online Learning Environments

Providing opportunities for students to use computers and navigate the online learning environment is another component of quality virtual schools. Ronsisvalle and Watkins (2005) reviewed research on training camps for sixth through ninth grade students as an orientation for online learning. The camp included note taking strategies, and a mnemonic device representing and web-environment icons. In comparing high achievers to low achievers, “100% were able to provide correct names of icons one week after participating in Rookie Camp… only one of three of the low achievers were able to correctly provide descriptions for these icon” (Ronsisvalle & Watkins, 2005, p. 121). The results of Rookie Camp raises questions about issues of low achieving students participating in online instruction. Intervening factors may be the actual design of the course, ease of access, navigation of the web, and interface allowing interaction with
others according to Volery and Lord (2000). The images and function of web-based learning environments or *learning mediums* adds to the richness of the experience for the online learner. The perceived richness of the technology was described in a theory reviewed by Volery and Lord (2000).

“In medium richness theory (Daft and Lengel, 1986), a rich medium is one that allows for both synchronous and asynchronous communication and supports a variety of didactical elements (text, graphics, audio and video messages),” (as cited in Volery & Lord, 2000, p. 218).

Web-based learning management platforms allow an interface between the instructor and students, often referred to as LMS systems, curriculum management systems (CMS) or computer-mediated communication systems (CMC). Volery and Lord (2000) shared features of web-based publishing software designed for Global Business 650, an online graduate course:

- **Summary.** The summary covers the essential concepts for each topic.
- **Slides.** The slides used by the instructor during intensive seminars can be viewed or downloaded.
- **Readings.** A series of articles relating to the topic is available online or through a link with another URL.
- **Quiz.** Ten multiple choice questions have been designed to check understanding of the topic. Clicking on that button presents the questions. WebCT™ automatically marks student responses correct or incorrect.
- **Course conferencing system (bulletin board).** This allows communication among all course participants. WebCT™ keeps track of which articles read by each student and, by default, initially presents only unread articles. The conferencing system can be searched (new and old articles) for content, date of sending, and more.
• Electronic mail. An electronic mail facility can be added to a course allowing one-to-one message transfer among course participants. Like the bulletin-board, messages can be searched for based on the sender, content, and date of sending.

• Virtual library. Several links to Curtin library, online journals and magazines, and international organizations are provided. These online resources provide readily up-to-date information when students complete their assignments (Volery & Lord, p. 219).

Although the web-based graduate course was significantly advanced, many of the features are common to public school virtual school platforms. Students in public virtual schools connect in a variety of ways. “Asynchronous tools include email, threaded discussion groups, and wikis, while synchronous methods include online chat instant messaging, phone calls, and text messaging” (Vanourek, 2011, p. 8).

A study by Wang and Hsu (2008) examined computer-mediated systems (CMC) systems and their use to facilitate online learning. Some of the latest communication tools are designed to enhance web seminars more commonly referred to as webinars. These specialized tools are found in courseware management systems such as Blackboard™ and WebCT™. Common tools include chat boxes, polling, transmission of video and audio, and enabling users to share a whiteboard. Some research findings specifically address advantages of webinar tools.

“There are five advantages of using webinar tools to facilitate communication between two sites: Webinar tool is affordable (deGara & Bora, 2006). Users can participate in a webinar session with a computer, video/audio capture devices, and broadband network connections. Webinar tools enable synchronous communication. Instructors can communicate with the learners in a synchronous format to provide immediate feedback to learners. Webinar tool facilitates real-time multimedia demonstrations. Instructors can share the application on the presenter’s site with all participants. Webinar tool facilitates multi-level interaction. Instructors can lecture, interact with the audience, facilitate participant group collaboration in a real-time format (Marjanovic, 1999), and designate certain participants to be in charge of the sessions. Webinar tool
provides an environment in which participants can archive seminar content for personal review or for people who missed the real-time session,” (as cited in Wang & Hsu, 2008, p. 177).

Wang and Hsu (2008) selected six students in a graduate-level instructional-technology training program to determine the effectiveness of webinar tools. Most of the students were experienced trainers in face-to-face learning environments. The student-trainers were asked to teach topics they have previously trained others without the webinar software. The six participants (student-trainers) were trained one-week before the webinar session in the use of Elluminate™, a CMC system incorporating webinar tools, and training in the multi-media authoring tool known as Authorware™. Three of the participants training topics were conceptual and the other three training topics were procedural (Wang & Hsu, 2008).

Conceptual training topics were

- essentials of successful synchronous learning,
- introduction to podcasting, and
- how to form a limited liability company in New York State.

Procedural topics included

- basic Authorware™ skills,
- how to use Google™ search skills (procedural and conceptual), and
- how to use PowerPoint™ to develop a Jeopardy game (Wang & Hsu, 2008, p. 178).

The six participants performed their perspective trainings and reported their experiences in a focus group interview. The reports were based on completion of assignments,
comments about using the webinar tools, and percentage of questions answered correctly following their webinars. The participants also shared their observations and self-reflections on basic procedural skills compared to hands-on skills. Wang and Hsu (2008) found rich interactions in webinar sessions addressing conceptual or procedural knowledge when the instructor promoted interaction with their students. Students reported favorably to attending sessions in personalized environments, which reduced anxiety levels. Issues arising from the use of webinar-based courses centered on the complexity of hands-on or complicated activities requiring higher cognitive loads, especially when the number of students exceeded the instructor’s ability to pay attention to each individual. Students preferred smaller group sizes for sessions requiring high levels of interaction. Another issue related to any possible technical issues. Participants were recommended to test the webinar environment and download supplemental materials needed for the presentation. A backup plan was recommended if technical issues arise. Understanding the appropriate delivery system for both synchronous and asynchronous instruction-delivery was another issue revealed in the findings. Wang and Hsu (2008) emphasized, “synchronous communication does not mean learning that is superior to asynchronous communication” (p. 187).

Interdependence of Course Design and Effective Teaching Strategies

Students may become overwhelmed with content available on the Web without course design and teaching strategies specifically targeting online learners (Swan 2002; Zhang & Quintana, 2012). Effective design of web-instruction to improve learning incorporates features that keep students focused, check for understanding, provide for
interactions (i.e., learner-content, learner-teacher, and learner-learner), includes activities for time management, and various forms of feedback. Swan (2002), studied student satisfaction among 73 online courses taught at State University of New York Learning Network (SLN) in the spring of 1999. In Swan’s (2002) review of research literature identified ten concepts thought to support effective design of web-based instruction were identified. These concepts were

- instructors acting as facilitators,
- use of a variety of presentation styles,
- multiple exercises,
- hands-on problems,
- learner control pacing,
- frequent testing,
- clear feedback,
- consistent layout,
- clear navigation, and

Swan’s (2002) research suggests access to web-based information can be overwhelming and may lead to poor learning. However, Swan (2002) found student satisfaction and perceived learning to be significant in the presence of three course design factors, “interaction with clear and consistent course content, an instructor who interacts frequently and constructively with students, and a valued and dynamic discussion” (p. 34).
The role of the teacher differs from traditional settings in two ways according to Tunison and Sackney (2004). First, the role of the online teacher is closely aligned to pre-designed course content with many design features built in to the course sequence. “The course was developed anticipating all of the needs of all potential students before they even enrolled in the course” (Tunison & Sackney, 2004, p. 37). Online teachers are limited in making changes to course design whereas; traditional teachers may make adjustments during the course. Secondly, the online teachers may view themselves as co-learners, learning the skills necessary to teach in the online environment (Swan, 2002). Rather than viewing the teacher as an authority figure, students view the teacher as a facilitator or resource person. The online teacher is faced with the challenge of building a learning community among the students and instructor, which is anchored by the course content and design features.

A study by DiPietro, Ferdig, Black and Presto (2008) surveyed highly certified online teachers with minimum of three years of experience to inventory best practices for online instruction. The survey included sixteen high school teachers representing core content areas in math, science, and English. Data was collected from the researcher observations and interviews. “Twelve general characteristics, two classroom management strategies, and twenty-three pedagogical strategies emerged from the data analysis” (DiPietro et al., 2008, p. 16). The pedagogical strategies were arranged into the following categories: Community, Technology, Student Engagement, Meaningful Content, and Supporting & Assessing Students. See Figures 3a and 3b for samplings of the teacher quotes by general characteristics, class management, and pedagogical
strategies. A sample pedagogical strategy from Figure 3b included an online teacher responding to a student’s request to produce a Flash movie in demonstrating knowledge of the assigned subject matter. The teacher responded, “I didn’t even know what a Flash movie was, but said, go for it, surprise me” (DiPietro et al., 2008, p. 21). The researchers described the assessment strategy in pedagogical terms, “teachers use alternative assessments strategies that allow students the opportunity to represent their knowledge in ways that are personally meaningful” (DiPietro et al., 2008, p. 21). Results from this study supported prior research recognizing a need to match pedagogy and technology with content and the medium of delivery to improve learner outcomes (DiPietro et al., 2008). Figures 3a and Figure 3b include ten best practices from online teachers.

Another study may have implications for organizing instruction for students learning from Web-based resources. A study by Zhang and Quintana (2012) compared a web-designed tool known as Digital IdeaKeeper™ designed to guide students to use scaffolding strategies for “online inquiry, inquiry planning, information search, analysis, and synthesis” (p.182). The study compared two groups of sixth grade students. The first group used regular online inquiry tactics such as taking notes and exploring the web to complete an assignment. The second group used the scaffolding software for their online inquiry and search for information on the web. The scaffolding software structured the students’ inquiry to use a clearly defined systematic approach. These students focused on the driving question, organized the group members’ prior knowledge on the topic, sought questions on what students wanted to learn, and asked the students to identify possible key words. The scaffolding group was prompted by the software to
General Characteristics:
You’re not doing day-to-day lessons with the kids as you are in a classroom, that information is there for them to work with and then it’s your job to cultivate that to even higher levels. This way teachers don’t have to spend all the time preparing the lessons, and allows them to use their time to take those lessons and build on them to a greater extent and I think that’s a unique quality of online teaching, you can devote more to communicating with student and giving feedback. It gives me time to provide [sic] students support over the phone, sometimes there’s just no better way to explain…”

“I try to present material to student in seven ways ... if you present material in seven different ways then the students should understand it, having [sic] to do with different learning styles, auditory, versus static, etc. So, I try to present materials in many different ways and in very different ways, from labs to videos to text, to try and engage students in their best way to learn.”

“One of the most important aspects of being a successful virtual school teacher is organization above all ... The teacher has to make sure they are logging in at certain times every day, they have to make sure they’re checking certain areas of the course, for example, the message area, organizing the discussion board, having grades set, and [sic] sending grades to students.”

Classroom Management Strategy:
“One student made a comment that started a firestorm on the discussion board .... the language in the discussion board post was such that I felt that it could be threatening to students in the class. So, the first thing I did was I removed the post immediately and I saved it, but then I contacted that student to discuss what they had posted and I read the post to them and asked them [sic], this is how this (the post) can be interpreted, is that the message you were trying to portray? If it was not, please understand you have a right to your opinion but are there other ways we could phrase this so you feel like you have a voice, but you are not impinging on the voice or the learning environment of the other classmates.”

Figure 3a Online Teacher’s General Strategies and Classroom Management. Adapted from DiPietro et al. (2008). Journal of Interactive Online Learning, 9(3), p. 16.
Pedagogical Strategies:

Assessment Strategy - “If I have a project and give students the outcomes, what I need them to understand [sic] Then I can ask them ... Now, how can you do that for me, what technology could you use? I would have kids come to me and say, well, I play with Flash, can I make a Flash movie? I didn’t even know what a Flash movie was, but said sure, go for it, surprise me.”

Engaging Students with Content – “A successful virtual school teacher uses a variety of ways to make sure that their students are engaged, and they see relevance in what they are being taught.”

Making the Course Meaningful for Students - “Kids are going back, some of them are posting three, four times to a thread because they get engaged in the conversation, the material is interesting. Whatever it is about using the boards, it has the ability to make it (the content) very interesting for them.”

Providing Support – “VS teachers need to be intuitive, meaning they need to know what questions to ask the students to really make sure that they understand the material because it’s, you know, if you’re sitting right next to somebody... they can show the step-by-step process and you can say ’oh, well, that’s where you went wrong’. So you really need to be intuitive and ask the right questions to understand where they’re lacking the understanding.”

Communication and Community – “They know that I am here, they know if they have questions for me, they can call me. I talk to my students on the phone, or they can email me, but I am here, I am really a teacher, I am really a person and I really want them to learn... no matter what class I teach.”

Technology - “For us to say every course must have podcast... I think is very shortsighted because then suddenly the teacher’s expertise is limited because that teacher is focusing almost exclusively on how I portray my podcast and how do I make that fit. When in fact the content [sic] would be better suited to capture using a whiteboard session on Blackboard™ rather than doing a podcast, because kids really need to see it rather than just hear it. So, ... I do think content has to be at the forefront.”

Figure 3b Online Teacher’s Pedagogical Practices. Adapted from DiPietro et al. (2008). Journal of Interactive Online Learning, 9(3), p. 16.
preview information, focus on ideas, monitor their reading comprehension and make comparisons. Strategies included identification of author’s purpose, main idea, ease of understanding, differentiating among authors, and summarizing. In addition to these strategies, the scaffolding group used the software features to record URL’s, search records, and review browsing history. A summary of differences between the regular online inquiry group and scaffold online inquiry group using web-based design features showed some dramatic differences among the sixth graders. The learning environment was a traditional school setting with computer time scheduled during the school day. The findings are summarized below.

The regular inquiry group findings were

- more activities, but superficial engagement,
- focus on mechanical, low level cognitive tasks,
- frequent off-task,
- poor planning and monitoring, and
- disconnected sessions (Zhang & Quintana, 2012, p. 189).

The scaffold inquiry group had more productive behaviors compared to the regular inquiry group. Specific findings were

- fewer activities, but deeper engagement,
- focus on meaningful, high-level cognitive activities,
- mainly on-task,
- adequate planning and ongoing progress monitoring, and
- continuous sessions, (Zhang & Quintana 2012, p. 189).
These results were from two sixth grade classrooms divided into small groups for collaboration. Overall, there were no significant differences due to gender or for level of student achievement. According to Zhang and Quintana (2012), “The scaffolding strategies seemed to be effective in supporting middle school students’ online inquiry through deepening engagement with content, improving efficiency, and enhancing self-regulation” (p.194). The study by Zhang and Quintana supported the importance of a rich and meaningful experience enhanced by web-based publishing software or in this case, a content management system. The software engaged students, was easy to use, and encouraged critical thinking and peer interaction. Unlike the virtual school environment, the sixth graders in the scaffolding study used computers in their schools. Further research may be needed to determine if the same scaffolding software is effective with students working from their homes or other remote locations.

**Building Learning Communities**

Hughes et al. (2007) offered insight into components of quality online learning for secondary mathematic classrooms. Two high school groups were compared, online and traditional in taking an Algebra I course. There was little difference in the two groups based on gender, ethnicity, and parental education levels. The demographics revealed 81% of the traditional students were enrolled in college preparatory program and only 33% of the online students were enrolled in the college preparatory path. The study compared the academic achievement of each group using outside independent achievement tests measuring algebraic understanding and performance. The students in the face-to-face and online groups completed an instrument known as *What is Happening*
in This Classroom (WHIC), a psychosocial measurement consisting of seven subscales: Student Cohesiveness, Teacher Support, Involvement, Investigation, Task Orientation, Cooperation, and Equity. Results showed online students consistently outperforming the traditional group across the Assessment of Algebraic Understanding (AAU) subscales, despite only one-third of the students being on a college preparatory path. The WHIC instrument was significant for three of the seven subscales. Student Cohesiveness and Cooperation was significantly in favor of the traditional classroom while the subscale Teacher Support was significantly in favor of the online classroom. The subscale item *my teacher checks in with me* had the largest mean difference favoring virtual students over traditional students (Hughes et al., 2007). The research revealed the importance of attentive teachers monitoring students on a regular basis. Furthermore, results from Hughes, et al. (2007) identified the challenge of establishing student cohesiveness and cooperation in the online classroom.

Swan (2002) reviewed cohesiveness, cooperation, and other factors related to building learning communities in a student satisfaction survey. The study included 1,406 university students representing 73 online courses. The study examined postings found in discussion threads. Swan (2002) categorized the verbal immediacy indicators (i.e., giving praise, soliciting viewpoints, use of humor, self-disclosure, etc.) as affective, cohesive, and interactive. According to Swan (2002), affective immediacy behaviors project personal presence of the online student. Examples of affective indicators include sharing emotions, stating values, offering humor and personal information or self-disclosure. Affective indicators are believed to be ways to replace facial expressions,
gestures, and intonation found in the face-to-face environment. Swan (2002) described cohesive indicators having verbal immediacy that maintain a sense of group presence and commitment. These behaviors work to build a sense of community and include greetings, addressing classmates by name, referring to the group using statements such as we, sharing social information unrelated to the course, and reflecting on the course and knowledge with others. Swan (2002) described interactive indicators as interpersonal interactions among communicators. Examples of interactive communications include acknowledging content and messages of others, expressing agreement or disagreement, stating approval by offering praise and encouragement, initiating questions or inviting response, and offering personal advice to classmates. Swan (2002) “reviewed a total of 1,366 discussions (663 affective, 235 cohesive, and 468 interactive) in 235 postings, or an average of almost 6 indicators per posting” (p. 39). The findings found students to use verbal immediacy behavior to project personal presence and reduce the psychological distance. “Participants in the course discussions seemed to employ more verbal immediacy behaviors then are normally found in traditional, face-to-face classroom discussions” (Swan, 2002, p. 42). Using a satisfaction scale, the study suggests the three immediacy behaviors (i.e., affective, cohesive, and interactive) are associated with student satisfaction and perceptions of learning (Swan, 2002).

Understanding Types of Online Interactions

Research about three types of learner interaction (student-instructor, student-student, student-content) suggests course design and teacher involvement as critically important components of online schools. A research study by Borup et al. (2013)
examined the frequency and percentage of time students were engaged in the three types of interactions. Their research also measured three course outcomes: students’ perceived learning, their course satisfaction, and their perceptions of change in their disposition towards course materials. There were 87 virtual high school student respondents with 42 being female. On average, students spent about eight hours per week on interaction activities with 72.3% of that time focused on learner-content interaction. The average amount of time in learner-learner interaction was about one and one-half hours per week and learner-instructor interaction averaged 42 minutes per week. Seventeen of the students reported no learner-learner interaction and 14 students reported three and one-half hours of learner-learner interaction. Students initiated interactions with their instructor 54.4% of the time. Students perceived 45.3% of interactions with learners and the instructor being social and the remaining time was for content and procedural purposes. Almost 59% of learner-learner interactions were social compared to only 14% of learner-instruction interactions being social. The non-social interaction with the instructor comprised of 40% on content purposes and 45% on procedural aspects of the course. In respect to the students’ perceived learning, course satisfaction, and disposition towards course materials, students in this study reported learner-instructor interactions significantly more motivational than learner-content interactions. The learners perceived educational value of learner-learner interactions being significantly lower than their interactions with content and the instructor. Researcher suggested the lower educational value of learner-learner interactions may be related to such interactions being mostly social. The research by Borup et al. (2013) found their result to be consistent with
metacognition related to self-regulation. In addition to aspects of cognitive processing, social interaction invites reluctant learners into the discussions and shared thinking. The research reviewed by Borup et al. (2013) suggested social interactions as a platform for *presence* of the instructor and students. The results from Borup et al. (2013), “support the need for instructors and course designers to create collaborative and rigorous shared thinking activities to make better use of learner-learner interaction, which tends to be largely social if left unchecked” (p. 164). The research from Borup et al. (2013) was consistent with several research studies suggesting online learning communities as being important for K-12 student success (Blazer, 2009; Hughes et al., 2006; Ronsisvalle & Watkins 2005; Roblyer, 2006; Swan 2002).

**Access and Support for Technology**

Although computers and the Internet are commonplace in wealthy urban areas of the country, access to technology necessary for online learning was not available to everyone. According to a review of research by Fuegen (2012), about 78.7% of U.S. households had access to computers by 2008. Access to the Internet has been measured in a variety of ways by the Pew Research Center. Disparities in the use of the Internet were explored based on household income, age, education, race, ethnicity, geographic location, religion, disability, language preference, and access to training (Rainie, 2016). An annual report from the PEW Research Center shows large variances based on demographics. For example, the home broadband users by household income were 45% of those making less than $30,000 annually, and 90% for households with income from $75,000 to $100,000 annually (Rainie, 2016).
Roblyer et al. (2008) found access to computers (i.e., home and at school) and time allocated during the school day for the supplemental online course as a contributing factor for success. However, access to computers did not necessarily predict failure (Roblyer et al., 2008).

The costs of hardware, software and technology support may be a barrier in school districts with tight budgets. Districts offering 1:1 computing programs increase access to the Internet at a higher cost compared to schools not offering 1:1 programs. School districts offering supplemental online courses must consider the costs of technology with other competing costs. In contrast, virtual schools can save money on facilities and transportation expenses while spending more money on hardware, software and logistical support (Vanourek, 2011).

According to Blazer (2009), students without access to computers at home have difficulty keeping up with assignments. Outdated hardware and software can add to the frustration of students and hinder chances for success. In Blazer’s (2009) review of research, the importance of adequate technical support was a special concern. “High quality virtual programs provided all students with technical assistance and ensured that students had the resources needed to access all online programs and services (Roblyer, 2006; Simonson, 2002; Weiner, 2003),” cited in Blazer (2009, p. 11). Although technology is necessary for online learning to happen, Vanourek (2011) emphasized that success in virtual schools was measured by the learning, not the technology. Technology offers tools for learning and demands technological skills from users for effective use.
Professional Development Supporting Online Learning

The importance of professional development for on-line learning was revealed in a study by Tunison and Sackney (2004). The study examined a Canadian secondary virtual school to determine the nature of instruction and the nature of community in a new virtual school serving the district. The district served approximately 15,000 students in grades K-12. The new virtual school was in its third year of operation at the time of the study.

Faculty in the Tunison and Sackney (2004) study were recruited from the conventional high schools to participate in the development of a virtual school high school. Fourteen teachers were selected based on their good teaching in the classroom. Four administrators were involved in the virtual school while serving in the conventional high school setting. The teachers were provided a room with individual workstations and peripheral devices (e.g., scanners, digital cameras, printers, etc.) and a small lounge area. The participating teachers were expected to attend their conventional school activities while serving as a virtual school teacher/developer. The teacher participants designed and taught their own courses using WebCT™.

According to Tunison and Sackney (2004) the students enrolled in supplemental online high school courses, all of which were offered in their conventional schools. There were 244 students enrolled in the virtual school at the time of the study. However, 81 students were inactive. Ten students were taking two courses each, leaving 153 actual student enrollments. There were 71 students participating in an online survey and in
focus group interviews. The faculty data was collected from semi-structured personal interviews.

Although the virtual school was successful in many aspects, the study revealed some areas needing improvement, especially related to professional development. Tunison and Sackney (2004) found “very few of the courses permitted students to engage in the inquiry-based activities so common in constructivist instructional methodologies” (p. 45). Although students and faculty were satisfied with the traditional instructional practices, the potential of the new innovative educational environment was not attained. Another finding was the lack of technical or pedagogical training for the new online learning environment. The faculty expressed a vision for the virtual school that exceeded the visions of administrators. Tunison and Sackney (2004) revealed selection of the best classroom teachers did not necessarily transfer into good instruction online, especially without professional development opportunities. Another finding from Tunison and Sackney (2004) suggested administrators of online schools become “knowledgeable about resource and skill requirements, team-building skills, knowledge of professional development needs of instructors and skills creating appropriate online learning environments” (p. 47). Students at the virtual school preferred working independently compared to collaboration. Some students regarded group work as wasted time, typical of conventional classrooms. However, “online learners did desire for some personal contact with their teachers” (Tunison & Sackney, 2004, p. 47). Tension between administrators and online teachers was exposed during the focus group interviews with teachers and administrators. One administrator suggested the virtual school was
“catering to independent learners rather than creating them” (Tunison & Sackney, 2004, p. 40). Teachers reported a lack of support in finding time to learn and improve online learning strategies due to required attendance at conventional school activities, even if those activities infringed on their previously scheduled instructional time (Tunison & Sackney, 2004).

According to a review of research from Blazer (2009), teachers introduced to online teaching were often unprepared and have little time to develop online instruction skills. Professional development for online instruction “should provide a balance of content knowledge, online teaching strategies, and technological skills” (Blazer, 2009, p. 11). Professional development for online instruction should include the following areas based on Blazer’s (2009) review of literature:

- “Using instructional strategies that facilitate online learning;
- Tailoring instruction to particular learning styles;
- Helping children acquire skills of autonomous learning;
- Motivating students;
- Promoting effective communication strategies;
- Enhancing student interaction and understanding without visual cues; and,
- Learning a variety of software applications and basic hardware maintenance (Cavanaugh et al., 2004; Greenway & Vanourek, 2006; Watson, 2008; Wilhoit & Schlosser, 2008),” (as cited in Blazer, 2009, p. 11).

Vanourek (2011) suggests professional development should account for differences in student ages, locus of control, levels of autonomy, intrinsic motivation and
cognitive development. These concepts are discussed from a psychological perspective later in this chapter.

Students’ Perceptions of Virtual School Experience

Several studies sought student perceptions of virtual school experience (Barbour & Hill, 2011; Green, 2013; Nehr, 2009; Pleau, 2012; Prosser, 2011; Roblyer, 2006; Thomas, 2008; Tunison & Sackney, 2004). A phenomenological doctoral study by Green (2013) asked the question, “What academic issues do virtual high school students encounter when transitioning into more traditional postsecondary classrooms” (p.7)? Twelve high school students were selected attending full-time virtual schools. Four themes were identified relating to their transition experience from virtual high school to traditional college. These themes were (a) Time Management, (b) Learning Environment Preferences, (c) Involvement, and (d) Homeschool Misconceptions. Green (2013) found time management skills learned from attending virtual high school increased confidence in their academic abilities in college. A statement from one of the participants captured a sense of the experience, “With online schools I had to do my work and push myself, and in college no one pushes you but yourself” (Green, 2013, p. 92). The second theme was learning environment preferences. Most participants preferred face-to-face learning environments in college. According to Green (2013), the participants appreciated the immediate feedback in face-to-face classrooms and social interaction. The third theme in Green’s (2013) study was involvement. The participants kept in contact with their friends, which helped them with transition in college. Some participants expressed the importance of being involved with students by taking part in social opportunities.
According to Green (2013), none of the participants had difficulty transitioning socially from life as a high school virtual student to the traditional college setting. The last theme in Green’s (2013) study was misconceptions about homeschooling. Many of the participants were home school students prior to entering their virtual high school. Few students in college understood home schools and virtual schools, which invited conversations clarifying the nature of home schools and virtual schools. One participant explained her frustration with the home school stigma:

> Oh, I wish people understood it better. I hate it when people think I was homeschooled. I have to say, no I wasn’t … no I’m not weird, I’m not a freak. I do have social skills. I’m so sick of it, I usually avoid the topic completely because it takes so long to explain” (Green, 2013, p. 111).

Another participant shared frustration when people found out she attended a virtual school.

> Yes, they like to call it homeschooling, which I don’t like. It’s not homeschooling, I have to tell them that. They’ll ask me where I went to high school and it’s sometime hard to say public charter online high school because I don’t want them to think that it is easy, or that I was homeschooled. They usually don’t understand. Sometimes it’s hard to explain” (Green, 2013, p. 111).

Yet, another participant had a more positive view of explaining her virtual school experience.

> Yeah, I mean it’s almost like home schooling, they ask you to do do your work in your pajamas? Honestly, I’m never home, it’s homeschooling. But I’m on the go. I’m doing a million things and being at home isn’t one of them. They think it is interesting, I mean, come on, we’re in the 21st Century, going to school online is pretty cool (Green, 2013, p. 113).

The Green (2013) study shared an interconnected theme from the participant interviews. The participants shared a common need for *more support and understanding*. The need for support tended to be a need for more academic advising and counseling for the
transition to college. One participant stated, “Having advisors in the high schools and colleges who can just help with the basic transition is important” (Green 2013, p. 116). The need for understanding was directed to misconceptions with homeschooling and virtual schools. Participants suggested a need for colleges to understand the virtual school setting, especially since the number of virtual school students is growing (Green, 2013).

A phenomenological study by Pleau (2012) examined eight adolescent virtual school students ranging from grades 9 through 12. The students were randomly selected without attention to age, gender, ethnicity or race in the presentation of data. The eight students completed an open-ended questionnaire and were interviewed. Each student was given a pseudonym name to maintain private identities. The student participants were randomly selected from virtual schools across the U.S. Two of the students attended the same virtual school while the other eight attended different virtual schools. Pleau (2012) found four perceived benefits and three perceived disadvantages of being a virtual school student from the data. The four perceived benefits from Pleau (2012) were related to access, choice, individualization, and convenience. The personal meanings for the perceived benefits were shared by many of the students with excerpts from the data, provided in the following sections.

Access was perceived as an important benefit from at least four of the eight students. Alexander needed flexibility to schedule a desired class. Likewise, Zoey turned to virtual schools to enroll in a desired course that would be beneficial for college. Suzanna stated, “my health issues were bad enough that I ended up in a hospital a number
of times … there was no way I could go to school like my classmates did, so I started taking virtual classes” (Pleau, 2012, p. 45). Likewise, Juliet attended virtual school due to chronic illness and the eventual need for a transplant. Julia stated, “the pain is too severe to actually attend school and I am constantly going to doctor appointments anyway” (Pleau, 2012, p.46). Michelle could physically go to the conventional school; however, her anxiety was a personal issue. Michelle commented, “On most days as soon as I got to school, I would kind of freeze up … I could not talk to my classmates or my teacher the way other kids could … I do not want to stay in the classroom at all so my grades were bad … and when I was in class it was still hard to get work done because I missed a lot of what the teacher said” (Pleau, 2012, p. 46). Michelle valued the easy access to her virtual school teachers using instant messaging or email. James stated a preference for doing work on the computer, “everything gets done online and on the computer … you use the Internet and submit your work on the computer … you do not have to be at the school or library … as long as you have the Internet you get your work done … I can go at night and submit the work even if my instructor is not online” (Pleau, 2012, p. 47).

Choice was described as the ability to choose their course offerings and having the choice of “where, when, and how” they would complete their school work (Pleau, 2012, p. 47). Zoey was heavily involved in dancing and acting requiring travel to lessons, auditions, and rehearsals. James valued virtual school in order to balance part-time work with graduating on time. Suzanna long-term health issue would likely prevent her from attending the brick and mortar school. She appreciated the flexibility to attend
virtual school to complete her high school education. According to Pleau (2012), many of the participants valued flexibility with pace and control of their daily schedule. Some student preferred working during the mornings while other chose to work on lessons in the afternoon and evening hours. Juliet is able to schedule her schoolwork around appointments to see specialist and doctors. Samuel is able to partake in Boy Scout activities in the afternoon and socialize with friends. Michelle was able to manage mental health issues having good days and bad days. With guidance from parents, she determined the time of day she will complete her schoolwork. Michelle commented, “I am doing much better with my virtual schoolwork and I actually enjoy doing it. If I’m having a bad morning, we just push the schoolwork back until a later time” (Pleau, 2012, p. 49).

*Individualization* emerged from the data as another perceived benefit of virtual schooling among the high school participants. Martha had a strong desire to control the pacing of her work and Suzanna concurred stating, “I can read through the lesson and possibly even finish the assignment quickly enough to get in several more… I can finish my courses more quickly than I would if I were at my regular school because I can continue when I am ready to move on” (Pleau, 2012. p. 50). Zoey discussed her elective courses as being interesting and beneficial for college. Samuel appreciated the ability to redo his assignments. If I do not do well on a lesson, I can redo that and get a higher grade … sometimes I just want to get the work done so I do not read all of the directions or the rubric … that is where I lose points mostly … the lessons I did not do well have a note written from the instructor telling me what I forgot to do or missed” (Pleau, 2012, p.
Alexander felt he was receiving individualized attention using Google chat™ or email for feedback. “I get one-on-one attention from my virtual teacher because it is just me … it is not like having twenty other students there to deal with at the same time” (Pleau 2012, p. 52). Michelle reported personalized attention from her virtual teacher using the whiteboard and instant messaging features on Blackboard™. Michelle stated a goal in her IEP was to complete high school and enroll in a community college. Virtual schooling allowed Michelle to minimize her anxiety attacks and continue her education. Samuel sought out individualized attention from his math teacher, “if it takes an hour, she (the teacher) will stay on Blackboard™ with me and help me solve the problem” (Pleau, 2012, p. 52). Samuel emphasized he needs help from his teacher without distractions.

Convenience was the fourth perceived benefit emerging from Pleau’s (2012) phenomenological study. Student reported being able to complete work on their schedule within a weekly timeframe. Hence, strict deadlines with lateness penalties could be avoided. Suzanna noted that “students are able to do their virtual schoolwork at any time of the day or night; there is also the option to do as many lessons as one wants at one time” (Pleau, 2012, p. 54). Student with health issues were able to plan their day according to their needs. The ability to redo work was convenient and contributed to a sense of accomplishment and confidence.

The Pleau (2012) study revealed student experiences perceived as disadvantages in virtual schooling. These disadvantages were teacher access and willingness, student difficulty with collaboration, and student self-motivation. These negative experiences are shared in the following sections.
Teacher access and willingness was an issue with lag time in communication with teachers and the willingness of teachers to help students with their questions. Martha was uncomfortable asking questions of her virtual school teachers.

I felt uncomfortable asking anything with my virtual teachers because in the past some of them did not seem willing to help… It seemed like I was being a bother to one teacher, so I started asking classmates rather than my teacher… I know it was not the best idea but it was easier for me (Pleau, 2012, p. 55).

Suzanna expressed frustration with the teacher’s unfamiliarity with the course design. She realizes the teachers did not design the course, which made it more difficult for the teachers to answer specific course questions. Suzanna shared the following experience.

I have found that there are some flaws (mistakes) in the courses and this makes it difficult for the teachers to be able to answer questions… I have a couple of virtual teachers who did not know their course very well either (Pleau, 2012, p. 55).

Michelle was frustrated to find the teachers were all online at different times and can take up to 24 hours to respond to a question via email. Samuel shared similar frustration as he relied heavily on teachers for science and math. Samuel says he has “become accustomed to lag time in all of his virtual courses as wait time can be as long as 24 to 48 hours to hear back from the teacher” (Pleau, 2012, p. 125). Martha mentioned a lack of conversation was not conducive to a deep student-teacher relationship. She stated, “I have not had much background information about my teachers” (Pleau, 2012, p. 56). Martha believed her relationships with her conventional teachers were stronger, even if she did not enjoy the courses very much.
Difficulty with collaboration was the second disadvantage emerging from the virtual school students in Pleau’s (2012) study. Several of the students mentioned the difficulty in collaborating with other students. James shared the following comment.

It made me wait a couple of weeks to get a partner… It kind of wasted my time … I could have been doing other lessons or other stuff while I was waiting to get a partner for the collaboration … I posted to the forum and waited and waited (Pleau, 2012, p. 57).

Suzanna and Zoey had similar complaints. Finding a partner was time consuming and collaborating on the assignment could take weeks. Suzanna explained students were not online at the same time and disliked the constant email tag. Martha felt the time involved in collaborative assignments would hinder her overall progress in completing the course (Pleau, 2012).

Student self-motivation was the third theme considered a disadvantage of virtual schools compared to conventional schools. However, Martha seemed to sense value in being an independent learner. Martha offered,

Virtual schooling has worked for me because I am determined and ambitious… I’ve always been that way… Eventually I always get everything done … I know what I have to do and it (my work) gets accomplished each week (Pleau, 2012, p. 58).

James indicated all of the motivation rests on his shoulders. James commented, “All of the motivation is up to me … no one is standing over my shoulder making sure I do my lessons” (Pleau, 2012, p. 59). Suzanna shared the need for self-discipline.

Virtual schooling is great if you are able to discipline yourself and make sure you get a certain amount of work done each week… If you do not get the work you will fall behind in the course … If you do not submit your work each week you can get suspended or even dropped from the class, and that goes on your transcript (Pleau, 2012, p. 59).
Michelle and Samuel shared the importance of their parents supporting them to monitor work completion. According to Pleau (2012) one of the students mentioned virtual school is not for everyone. However, the same student recognized a feeling of responsibility and independence. Alexander claimed he was successful in the virtual school environment due to his “type A personality and work habits” (Pleau, 2012, p. 59).

The Pleau (2012) study revealed experiences of eight students in their particular virtual schools. The findings and recommendations apply to those particular students and virtual schools in the study and may not be generalizable to other virtual school students. The findings in Pleau’s (2012) study suggests virtual teachers recognize “that adolescents find benefit in flexibility with work time/time of day, access to schooling when brick and mortar is not possible, access to courses when/if desired, as well as individualized attention and responsiveness” (p.72). Pleau’s (2012) study “uncovered three problematic areas of virtual school learning for adolescence: teacher access & willingness, student collaboration, and intrinsic motivation” (p.72).

A study by Nehr (2009) examined the school environment preferences of middle school students enrolled in online courses. Twenty-four students in grades 6-8 responded to an online survey. Some of the students were private homeschoolers while others were enrolled in traditional brick and mortar schools. The students were recruited from a homeschool discussion board following a failed attempt to access online schools serving middle school students. Students comments on learning environment did not indicate a strong preference for either online or traditional classroom settings. According to Nehr (2009), “If a student had a recent negative experience in the online classroom, that
student tended to feel more drawn to the traditional classroom. However, if the student had a positive online learning experience, this did not necessarily translate into the student feeling more drawn to the online environment. Instead, it made the student more open to the online learning environment” (Nehr, 2009, p. 42). A sampling of student comments appears below.

Honestly, I feel I overcame most of the difficulties and would do an online course again, I am not worried so much about the grade as I am about keeping myself current. I think I have relaxed some of my hang-ups on appearing in online settings and would perhaps do better in this arena in the future.

I prefer the traditional environment because I love constructive criticism, instant feedback, and personal interest from peers and educators.

I prefer the feedback of the traditional class and the self pace of online learning (Nehr, 2009, p. 42).

In regard to online courses, the, middle school student responded to the question, What made this a good/bad/neutral experience? A sampling of responses follows below.

The convenience of taking the class on my own time.

There was no enforcement of due dates or sense of urgency during the discussions so I had no interest in contributing.

It was good as in it was self paced and I could finish as quickly as I liked, but would have been more effective had the teacher been more involved with the discussions and answering questions.

The information was easy to access but expectations were not clearly outlined.

I learned a lot in an efficient manner (Nehr, 2009, p. 45).

Nehr’s (2009) study shared most students had higher levels of satisfaction with online learning given adequate presence of the teacher and clear expectations for the course. Nehr’s (2009) study also explored reasons for middle school students choosing
online courses. Some of the data indicated a need to supplement course offerings due to the threat of budget cuts in their local schools. Others sought online learning to avoid bullying and overcrowding. In some cases, the homeschooled students turned to online courses where parents or tutors were not as strong (Nehr, 2009).

Barbour and Hill (2011), studied the experiences of eight secondary students attending the Centre for Distance Learning and Innovation (CDLI). CDLI is an online school serving rural students living in two sparsely populated Canadian provinces since 2001. CDLI provides supplemental courses meeting the provincially mandated curriculum that otherwise might not be provided due to a lack of specialized teachers. Barbour and Hill (2011) investigated student experiences from three perspectives. First, the researchers were interested in understanding the synchronous experiences of students. Likewise, the researchers explored the asynchronous experiences of students. And finally, the researchers explored where students seek assistance and why they choose those sources. Data was collected from focus group interviews and observations captured using video recording and researcher’s field notes. The eight students ranged from grade 10 to 12 and represented the college-bound pathway, and those heading to trade and industry. There were three females and five males participating in the study. Each student was given a pseudonym name to maintain privacy.

**Synchronous experiences of students.** Synchronous student experiences were both passive and active. Students reported sitting and listening during class presentations from their instructor. Student JD described active participation as, “if [the teacher] says something important, I
just flip back up to the screen and see what he is writing up and then write up what he’s writing up or prints [sic] it off” (Barbour & Hill, 2011, para. 14). Researchers observed students actively participating through direct messaging as a teacher introduced a new concept on the electronic whiteboard. The teacher would ask questions and the students would respond. Max described a strategy to show the teacher you are paying attention during synchronous instruction.

There’s just not an actual teacher there to look at them [sic] and, you know, to look at them sternly and now that they got to pay attention and they will, but in [Elluminate™] Live all you got to do is a check mark now and then to see if you are paying attention” (Barbour & Hill, 2011 para. 16).

During the Barbour and Hill (2011) study, researchers observed three students off-task during a synchronous session. These students were in the same room and partnered in misleading the teacher about their attentiveness. One of the students checked in with the instructor on behalf of the other two students, who were engaged in discussions about the school’s graduation, an upcoming trip to the capital city and other plans (Barbour & Hill, 2011).

The students in the Barbour and Hill’s (2011) study reported a sense of community using terms such as “friendly,” “close knit,” and “family” to describe their rural school. Barbour and Hill (2011) “observed students frequently asking each other content-based questions during synchronous class time” (para. 17). Most students preferred student-to-student interaction using direct messaging rather than over the mic.

“I just don’t like talking over the mic,” said Jasmine, while Justine indicated, “I guess I’m kind of shy using the mic” (Barbour & Hill, 2011 para. 18).
Asynchronous experiences of students. Asynchronous student experiences were guided by the teachers to complete one of four activities:

1. questions about their reading or practicing new mathematical or scientific formulas;

2. work on up-coming assignments;

3. for science students, completion of hands-on laboratory work; and/or

4. for the language arts students, reading of various assigned poems, short stories, novels and plays (Barbour & Hill, 2011, para. 20).

The students at CDLI revealed off-task tendencies based on their drive to complete assigned work. In some cases, students seem to procrastinate, while in other cases they would complete the assigned work ahead of the teacher’s deadline. Student comments relating to procrastination or acceleration include the following.

(Mya) Usually like you’re assigned so many questions for each online class and then at the end of the month or something like that, he’ll want them all done … I usually wait until towards the end of the month and come home and get them all done.

(Peter) Sometimes we have [sic] nothing to do.

(Kathy) He didn’t have any work assigned during that time, it was just that we were supposed to finish a novel over Easter break and I had it all done.

(Mya) I didn’t really give myself any free time except for the last fifteen minutes of class … Even if I am not finished up, I’ll still give myself fifteen minutes (Barbour & Hill, 2011 para. 20).

Barbour and Hill (2011) followed-up on the percent of time each student actively worked on their asynchronous assignments. The time spent on asynchronous class during the 60-minute class period ranged from 10% to 100% of the 60-minute class time. In Mya’s case, she worked 45 minutes out of the 60-minute class period. One student stated their
off-task time as talking with classmates, checking email, spending time on a friend’s website, and listening to music (Barbour & Hill, 201, para. 20). The students’ asynchronous time was unstructured. During unstructured time, the students often had no work to complete or were able to complete work outside of the scheduled class time (Barbour & Hill, 2011).

**Students seeking assistance.** Students seeking assistance was the third and final phenomenon observed Barbour and Hill, 2011). A policy was established for students to seek help from their online teachers rather than the school-based teaching staff. CDLI students utilized tutoring programs via Elluminate Live™, a computer-mediated communication (CMC) platform. Online teachers and students used multiple learning objects (MLOs) for tutoring and additional explanations. According to Barbour and Hill (2011) students preferred using in-school classmates, the online teacher, and in-school teachers for assistance and rarely used Elluminate Live™ recordings, the course content in WebCT™, the e-tutors, and MLOs. Students assisting students was favored for both synchronous and asynchronous settings. Students mentioned convenience and the perceived ability to speak at their same level. A comment from Max illustrated collaboration among students as being preferred over consulting with the teacher.

> We all are working on our questions by ourselves and then, ah, ah, we figure it out and say everybody, everybody got the question done or whatever and if we got the same answer, we say alright then go on, but if we don’t we’ll get together and figure out who went wrong where or whatever (Barbour & Hill, 2011, para. 27).

According to Barbour and Hill (2011), students commented on helping students make-up missed schoolwork due to absence and gathering around the kitchen table to for a small
Students would turn to their online teacher if they were unable to help each other with questions. Students often use email to ask their teacher questions. However, their teacher encouraged students to use the telephone for immediate assistance.

The purpose of the Barbour and Hill (2011) study was to determine the nature of secondary virtual school learning in two Canadian provinces. These researchers recognized three needs for improving the experiences of virtual school students. First, strategies were needed to make better use of asynchronous learning time to reduce off-task time and increase student engagement. Secondly, strategies were needed to develop a sense of the online community. And finally, the strong sense of co-located communities should be studied to determine how they were formed as a potential model of cooperation and engagement.

The Canadian study by Tunison and Sackney (2004) contributed several findings regarding the nature of instruction in a particular virtual school. Participants were secondary online high school students. The themes emerging from the data analysis were: “(i) the role of teacher, (ii) the role of students, (iii) instructional strategies, (iv) the impact of those strategies on students, and (v) the impact of those strategies on faculty” (Tunison & Sackney, 2004, p. 37). Seventy-one students participated in an online survey and focus interview groups. The Crestview Cyberschool (CC) was in its third year of operation providing supplemental online courses to students attending a large urban school district. The students shared comments regarding their experiences. “One student observed that her experience in CC had been positive because it helped her to
become a self-motivator and learn to work and learn to work in a different way” (Tunison & Sackney, 2004, p. 38). Other students concurred, “we are self-motivated [about school] for the first time! ... the onus is on us. We are required to work things out on our own. This make us learn better” (Tunison & Sackney, 2004, p. 38). Students shared the need for responsibility and maturity in making decisions about their education. Another student found cyberschool to be “more difficult than regular school because we are forced to work things out for ourselves” (Tunison & Sackney, 2004, p. 40). The students at CC voiced issues with social learning requiring student-to-student interaction, “Most people don’t take the time to be sociable – they just want to get done” (Tunison & Sackney, 2004, p. 44). Students shared their belief about online learning as fostering independent learning and did not expect group work or collaborative activities. However, several students indicated interest in building an online community. Some of the students chose to use the web-page development tools provided by WebCT™ and appreciated other students doing the same. According to Tunison and Sackney (2004), “several students were intrigued by the community-building possibilities afforded to them by the creation of personal web-pages, particularly as a means of establishing personal identity” (p. 44). Students stressed value in getting to know their teacher online, placing higher value on student-teacher interaction compared to student-to-student interaction.

Tunison and Sackney, (2004) found another type of social interaction revealed by the students. Social interaction with the community was assigned by many of the online teachers. “Students interact with people in the communities by attending and reviewing concerts and art shows, completing community service, and conducting mini research
studies and interviews (Tunison & Sackney, 2004, p. 45).

Thomas (2008) surveyed 2000 middle school and high school students enrolled in web-based state virtual school at the request of the Southern Regional Education Board (SREB). The survey instrument included 14 questions in three domains.

1. Was the course well designed and were instructional materials available when needed?

2. Did the teacher set high academic expectations, support and facilitate student learning?

3. Was the student prepared for the online course? (Thomas, 2008, p. 1).

The survey included an open-ended short response. The response to the fourteen-question survey used a four-point scale: Strongly Disagree, Disagree, Agree, and Strongly Agree. A positive response was considered strongly agree and agree.

Regarding teacher expectations and student interactions, nearly four out of five positive responses were received for interaction with the teacher, and three out of four responses were positive for interactions with other students. A student commented, “My experience in this course has been outstanding. I had the opportunity to … meet other students. My instructor was … always willing to lend a helping hand” (Thomas, 2008, p. 2). In being prepared to take online courses, 80% of students felt they were prepared for the online course, and three out of four students positively responded to being familiar with the technology tools and software. A student commented,

I came into this course stressing about whether or not I’d be able to comprehend this material without a teacher… physically there with me. I was very surprised at how organized this course was and how helpful the instructor was. All you had
to do … was follow the lesson plan, study and ask specific questions (Thomas, 2008, p. 2).

Other student comments included,

The online course… taught me how to accurately word my responses when completing assignments.

Not only did I learn more about computers and how they work – I learned more about managing my time and getting my work done.

It was a completely new experience for me and, although I can be technologically challenged at times, I was able to manage very well (Thomas, 2008, p. 3).

Some of the less positive responses related to the time required by the online class (55% positive responses) and when needing extra help, I received from the instructor (74% positive). When students were asked if they would consider taking another online class in the future, 59% of the respondents were positive. Some of the student’s comments were

I liked my course, but it took too much time.

The only drawback I saw from the online course experience is … that it requires dedicating a lot of extra time to squeeze another course into our already-tight schedules. This obviously, has to do with my personal time management, and almost all the problems I had with the course were caused by this (Thomas, 2008, p. 4).

Thomas (2008) suggested the summary responses would be helpful to SREB states to improve the quality of their courses and further improve the quality of online teachers.

Motivational Constructs Found in Learning Environments

Several studies indicate motivational factors contribute to success of online students (Aragon, Johnson, & Shaik, 2002; Fazey & Fazey, 2001; Holcomb et al., 2004; Lin, Lin, & Laffey, 2008; Liu et al., 2010; Milttiadou & Savenye, 2003; Nash, 2005;
Savery, 2005; Wang & Newlin, 2002; Zhang & Quintana, 2012). Other studies aimed at middle school students in the traditional classroom support similar motivational constructs and may have implications for online learning environments (Gonzalez-DeHass et al., 2005; Richardson & Newby, 2006; Roeser, Midgley & Urban, 1996; Schunk, 1989). These studies were reviewed in relationship to Miltiadou and Savenye’s (2003) six motivational constructs thought to enhance online learning. And finally, the impact of family and school culture on the motivation of middle school students in traditional settings may have implications for online learners (Liu et al., 2010; Gonzalez-DeHass et al., 2005; Marchant et al., 2001).

Miltiadou and Savenye’s (2003) review of literature found six constructs of motivation thought to enhance success of online students. The constructs are well known in the traditional face-to-face learning environment and are beginning to emerge in the online environment. The six motivational constructs are

1. Self-efficacy
2. Locus of control
3. Attributions
4. Goal orientation
5. Intrinsic versus extrinsic motivation

In the following sections, the six constructs are described in more depth offering cues to potential strategies for improving motivation of online learners. Miltiadou and Savenye (2003) posits motivation as being important in any learning environment. According to
Mlitiadou and Savenye (2003), motivation has been studied since the “5th century BC with Greek philosophers such as Plato and Aristotle” (para. 15).

Self-Efficacy

Self-efficacy is a strong predictor of academic performance in traditional classroom research (Mlitiadou & Savenye, 2003). Bandura (1993) described self-efficacy as confidence to succeed based on one’s own abilities. An individual with high levels of self-efficacy feels in control of their own attitudes, ability to generate ideas, and is able to carry out actions to a desirable outcome. “According to Bandura (1986) individuals acquire information to help them assess self-efficacy from four principal sources: (a) actual experiences, (b) vicarious experiences, (c) verbal persuasion, and (d) physiological indexes,” cited in Mlitiadou and Savenye (2003, para 52).

Mlitiadou and Savenye (2003) breakdown each of Bandura’s sources of self-efficacy in their review of literature.

Actual experiences. Actual experiences result in a history of successes and failures impacting one’s beliefs about their own abilities. Bandura (1993) recommends careful attention to learning environments impacting self-efficacy beliefs. According to Mlitiadou and Savenye (2003), “Researchers have established that self-efficacy is a strong predictor of academic performance in traditional face-to-face classrooms (p. 215). The major principles contributed to self-efficacy may have practical implications for online learning environments.

Learning environments that construe ability as an acquirable skill, deemphasize competitive social comparison, and highlight self-comparison of progress and personal accomplishments are well suited for building a sense of efficacy that promotes academic achievement (Bandura, 1993, p. 125).
Vicarious experience. Vicarious experience is learning from others through modeling, observation, reading, etc., as opposed to learning from personal lived experience. Although vicarious learning contributes to self-efficacy, learning by personal experience makes a stronger contribution to self-efficacy. An example of vicarious experience would be a student feeling uncomfortable with technology engaging in a threaded online discussion following examples from peers (Miltiadou & Savenye, 2003).

Verbal persuasion. Verbal persuasiveness is the third principle source contributing to self-efficacy. The act of verbal persuasiveness is to provide encouragement (e.g., “you can do it”) and most effective when applied to a learner’s actual effort to perform a task. Verbal persuasion is most effective when understanding the needs of the learner. The persuasiveness should be aligned with the “ability of the learner, difficulty of the task, amount of effort expended, amount of external assistance received, the number and pattern of successes and failures, the perceived similarity to models, and the persuader’s credibility” (Miltiadou & Savenye, 2003, para. 21). Dividing large complex problems into smaller discrete learning tasks increases the opportunities for success and praise.

Physiological indexes. Physiological indexes involve bodily symptoms from stress and anxiety. Students may have symptoms of sweating or elevated heart rate (Miltiadou & Savenye, 2003). Nervous tendencies may interfere with concentration to complete mental and physical tasks. Physiological indexes affect motivation due to emotional fears about learning tasks, test anxiety, and fear of assessment (Miltiadou & Savenye, 2003).
Research from Lin et al. (2008) reviewed a study examining the self-efficacy of online students based on their information technology skills. Researchers found no difference in course satisfaction based on the self-efficacy in using information communication technology. However, self-efficacy did predict course satisfaction. Another study by DeTure (2004) hypothesized online students with strong field independence (i.e., a self-efficacious belief of ability to engage with abstract environments) would predict success in terms of course grades. No relationship was found between field independence and online learner success. The studies examined by Lin et al. (2008), and DeTure (2004) suggests explicative models must consider more than self-efficacy beliefs in predicting successful online learners. Holcomb et al. (2004) reviewed a study to determine gender differences in technology self-efficacy. There was no statistical difference in technology self-efficacy among male and female college students taking business courses. The researchers caution the results might be due to being accounting students. However, the cautionary comment suggested any differences in technology may be a function of prior technology instruction rather than gender differences. Gender differences in attitudes towards technology have been reported in research studies. Male students tend to have higher self-efficacy technology beliefs compared to female students. The motivational differences may stem from early grades through high school with boys receiving more esteem building encouragement compared to males (Holcomb et al., 2004).

Wang and Newlin (2002) encourage online instructors to assess their students’ self-efficacies. Students with low self-efficacies accompanied by a lack of presence early
in the course receive emails and telephone calls to discuss behaviors linked to success. These supports focus on technological and course demands of the online course (Wang & Newlin, 2002).

**Locus of Control**

Motivation to succeed may be controlled by the learner (i.e., internal) or by others (i.e., external). Locus of control has been found to be useful in explaining students’ performance. Miltiadou and Savenye (2003) describe internal locus of control as a belief in one’s own abilities and efforts as the reason for success. Conversely, external locus of control is success due to outside forces such as task difficulty, luck, and actions of others (Miltiadou & Savenye, 2003).

**Internal locus of control.** Internal locus of control is associated with several achievement behaviors. According to Fazey and Fazey (2001), students with internal locus of control exhibit behaviors related to persistence, challenges, interests, curiosity, resilience to failure, and commit to progress associated with higher self-perceived competence. Bandura (1993) posited internal locus of control as, “… one learns from mistakes. Therefore, they are not easily rattled by difficulties. They judge their capabilities more in terms of personal improvement than by comparison against the achievement of others” (p. 120).

**External locus of control.** External locus of control may have positive or negative consequences. The positive factors relate to outside sources or support. A study by Steese et al. (2006) reported adolescent girls having higher levels of external motivation compared to adolescent boys. In this study girls perceived higher levels of social support
compared to boys. Social support was defined as, “the experience or the perception of being cared for, valued, included, and/or guided by others, especially one’s family, peers, and/or community members (Steese et al., 2006, p. 60). Peer support was another potential source of external motivation, such as participating in sports activities and other talents. Likewise, support from teachers was an important source of external control. However, research indicated a downside to externally perceived control that threatens autonomy. “Externally controlled students will attribute their success or failure to luck or other action of powerful others, and thus perceive that they have little personal control over outcomes” (Fazey & Fazey, 2001, p. 348).

Locus of control and self-efficacy are important in supporting at-risk students taking online courses. According to Wang and Newlin (2002) synchronous communication support such as regular virtual office hours and regularly scheduled chats benefit online students who have external locus of control and low self-efficacy. In addition to synchronous interaction with the instructor, students with external locus of control and low self-efficacy benefit from peer-to-peer interactions. Peer-to-peer interaction provides a collective sense of responsibility; feedback from peers is a source of encouragement from study partners (Wang & Newlin, 2002).

A study by Parker (2003) examined locus of control and academic persistence. The study included 95 community college students and four instructors. Students were divided into two groups, receiving either online instruction or traditional classroom instruction in the same course. Two of the four instructors taught the class in both environments, online and traditional. The two other instructors taught either the online
class or the traditional format. All students received 15 weeks of instruction regardless of the format. The students completed the Rotter’s Locus of Control survey at the beginning and end of the course. Parker tested two hypotheses and reported the findings.

1. Locus of control, as a measure by the Rotter’s Locus of Control Scale, is a significant predictor of academic persistence.

2. Locus of control scores increase, move toward internality, over the course of a semester for students enrolled in web-instruction.

Through the use of a chi-square, this hypothesis was shown to be significant. Locus of control and academic persistence were shown to have correlation of .83 (p=.05). Students with internal locus of control and self-motivated, were more likely to complete the online course than students who score as externally motivated. Parker’s second hypothesis was also proven to be significant. Students who enroll in online courses tend to become more self-motivated than students who attend traditional courses. Change in locus of control scores by the students enrolled in the traditional sections of the courses was not significant (Parker, 2003, p. 60). The Parker (2003) study reinforced the need to be self-motivated given the freedom inherent in online courses. Students choose the time and place they will complete tasks amongst other factors influencing their use of time. Parker (2003) cautions future researchers focusing on only distance learning students. Student preferring distance education may have different characteristics compared to traditional students. Parker (2003) quotes Diaz and Cartnal (1999, p. 134) inferring online students as being internally motivated.

“It is not surprising that students who prefer independent, self-paced instruction would self-select into an online class. It may be that the distance education format appealed to students with independent learning styles, and that
independent learning preferences are well suited to the relative isolation of the distance learning environment,” (as cited in Parker, 2003, p. 57).

The second hypothesis from Parker (2003) suggests locus of control as being malleable or unstable. Changing the locus of control to internality suggests strategies may be needed to support and improve the learner’s confidence as an online learner over time. Strategies to become more internally controlled may be built into online course designs. Web-based course designs incorporating motivational strategies, such as scaffolding and self-help interventions controlled by the learner are known to be effective with online learners (Blazer 2009; Roblyer 2006; Volery & Lord, 2000; Zhang & Quintana 2012). On the other hand, course designs with game-like elements offering tokens or rewards might favor external locus of control and may stifle motivation over time (Shelton, 2007).

**Attributions**

Learners may explain their success or failures due to internal or external causes. “Children view effort as a prime cause of outcomes” (Schunk, 1989, para. 16). The causal conditions perceived to be internal might be expressed as, “I should not expect a good grade since I am not a good student … I did not do well on that assignment because I did not study” (Hodges, 2004, p. 2). Both of these statements are *personal factors* perceived by the learner. External attributes might be expressed as, “I did not do well on the assignment because it was too difficult” (Hodges, 2004, p. 2). External causations are sometimes referred to as *environmental factors* such as teacher feedback, social norms, luck, or situational influences (Miltiadou & Savenye, 2003). The locus-of-causality (i.e., attribute construct) is similar to the locus of control (i.e., self-efficacy construct). In both types of motivational constructs, the learner’s achievement beliefs, or causation beliefs
may be affected by the stability of environmental factors and perceived controllability of
the learner to learn. Hodges (2004) illuminates the consequence of stability (i.e.,
unchanging environment) and personal lack of control perceived by the learner,
“Learners will have no motivation to participate in a learning experience without the
belief that change is possible” (p. 2).

Attribution theory reflects on the causes of successes and failures, known as
attributes. Causal dimensions are linked to particular consequences, which often reveal
psychological meanings. There is a locus of control being internal or external. The
perceiver may view the cause as being stable or unstable. Graham and Juvonen (1998)
provide an example of attribution theory in the following description of a victimized
child.

A child who attributes his or her harassment to a physical disability (stable over
time) is more likely to anticipate getting harassed again than one who believes
that he or she was merely a random (unstable over time) target of peer ridicule

The victimization may follow two paths based on the child’s perception of self-blame. If
the victimization is perceived as uncontrollable and stable, the therapist may find
maladaptive responses such as social anxiety, loneliness, and passivity. If the
victimization is perceived as controllable and unstable (e.g., random event), then the
therapist may find a lesser degree of social anxiety, loneliness, and passivity.
Internalization of self-blame may result in significant emotional stress.

Goal Orientation

According to Schunk (1989) goal setting is comparing one’s present level of
performance against a standard. Goals may be short-term or long-term and may be
categorized as general goals or mastery goals. Students possessing high efficacy seek mastery goals, which tend to be short-term being explicit and measurable. Consequently, high quality online course designs provide learners with opportunities to set short-term goals which are observable and explicit in achieving mastery (Blazer, 2009). Students learning to master short units of instruction achieve proximal goals. According to Schunk (1989), proximal goals are short-term and result in greater motivation compared to long-term or distal goals. Proximal goals operationalize self-motivation with immediacy of feedback. Successful feedback improves self-efficacy while failures impact self-efficacy depending on locus of control. Internal locus of control motivates students to keep trying and to learn from their mistakes. On the other hand, learners with an external locus of control may cease effort to avoid being judged as a failure from others. Learners with external locus of control may learn more superficially, whereas; learning is based on seeking acceptance in the judgment of others (Miltiadou & Savenye’s, 2003).

General goals have little impact on motivation (Schunk, 1989). For example, setting a goal to do your best work is not a clear standard and may be difficult to measure. On the other hand, specific proximal goals within an instructional program are effective motivators regardless if set by the learner or the teacher. Schunk (1989) quotes his earlier research regarding mathematical self-efficacy and goal setting.

“Bandura and Schunck (1981) found that, compared with distal or no goals, proximal goals heightened children’s task motivation and led to the highest mathematical efficacy, interest, and skill performance. Distal goals resulted in no benefits over those obtained from receiving the instructional program,” (as cited in Schunk, 1989, para. 34).
Miltiadou and Savenye (2003) identified two patterns in goal orientation. The first pattern is *mastery response* characterized by completing the task regardless of how many mistakes are made. The goal is mastery, which involves deep thinking and cognition. According to Richardson and Newby (2006), *deep thinking skills* are self-regulated learning in its highest form to arrive at solutions on your own volition. Deep thinking is intrinsic due to interest in what is being learned and develop competence. On the hand, low cognition utilizes *surface skills*, which are characterized as doing only what is necessary to meet minimum requirements (Richardson & Newby (2006). The reward of mastery goal orientation is satisfaction from meaningful activities serving curiosity and interest rather than external rewards. The second pattern is the *helpless response*, which is associated with performance goal orientation (Miltiadou & Savenye, 2003, para. 30). Learners with a performance goal orientation are concerned how they are judged by others and may choose to avoid challenges. The helpless response results in task avoidance and reducing risks of appearing incompetent to others (Miltiadou & Savenye, 2003). Implications for enhancing mastery response and inhibiting helpless response are important in course design and instructional practice. Competency-based learning is a strategy used for online instruction. According to Patrick, Kennedy, and Powell (2013), competency-based instruction is a learning model to ensure *mastery of learning*. On the other hand, social comparison goals comparing relative ability and competition may have negative effects on student motivation. Roeser et al. (1996) studied eighth grade students regarding personal achievement goals and feelings of school belonging. Roeser et al. (1996) found that personal relative ability goals draw on surface level cognitive
strategies, lowered self-efficacy, and increased the tendency of discipline problems. In contrast, task mastery goals use higher-level cognitive strategies, improved academics, raised self-efficacy and resulted in positive school behavior.

Richardson and Newby (2006) studied the role of students’ cognitive engagement in the online learning environment. The use of cooperative group instruction exposing relative task abilities (i.e., performance task goals) may create stress and negatively impact learners experiencing helpless responsiveness without safeguards in place. Students selected for cooperative roles need to be assessed for likelihood of being successful in their role, along with group training emphasizing praise and encouragement.

Nash (2005) studied online course objects and related learning theories. A learning object is any object useful for educational purposes. Digital objects create images (i.e., visual components) of online courses and are directed to achieve a learning outcome. A computer programmer may consider a digital learning object as a series of codes. These codes are the building blocks of online learning management systems such as Blackboard™, WebCT™, and Desire2Learn™ (Nash, 2005). Digital objects are found in many other online formats as well (e.g., podcasts, wikis, web-based publishing, etc.). Nash (2005) suggested designs incorporate goal-setting theory to motivate online students. The goals should be clear rather than vague, challenging to avoid boredom, and achievable to minimize the chance of failure. The learning outcome should be relevant to the learner with opportunities to make connections in authentic ways. For example, a course may integrate personal financial goals with home ownership and personal financial security. The learner may find a variety of tools online such as buying a home
vs. renting a home. Nash (2005) cautions that learning objects may become a function of technology rather than desired learning outcome. “Research is also needed to determine the relationship between various objects and the learners’ motivation, self-concept, self-efficacy, and overall performance” (Nash, 2005, p. 227). Research by Nash (2005) is consistent with goal orientation as a construct of motivation applied to online learners.

**Intrinsic and Extrinsic Motivation**

Intrinsically motivated learners seek out challenges, persist when difficulties arise, and view errors as opportunities to learn Gonzales-De-Hass et al. (2005). External incentives are not as important to intrinsically motivated learners as the learning activity itself is the reward. Gonzalez-DeHass et al. (2005) reviewed research about types of parental involvement and the impact on students’ motivational orientation (i.e., intrinsic and extrinsic).

Results from a sample of 93 fifth grade students showed that parent surveillance of homework was related to an extrinsic motivational orientation. The more parents were involved in monitoring, enforcing, or helping with homework, the more students reported being extrinsically motivated and dependent upon external sources for academic guidance and evaluation. Teachers rated these students as showing less initiation, autonomy, persistence, and satisfaction in doing their schoolwork. However, when parents reacted to their grades by providing encouragement and praise, students were more likely to report an intrinsic motivational orientation characterized by a preference for challenging tasks, curiosity, and interest in learning (Gonzales-De-Hass et al., 2005, p. 110).

Marchant et al. (2001) found “Parenting style, parental involvement teaching style, and school atmosphere change student’s view of learning … this work suggests students are internalizing these messages received from their learning contexts as early as late elementary/middle school years” (p. 515). A study by Liu et al. (2010) tested a parental involvement instrument measuring parental encouragement, parenting model, parental
reinforcement, and parent instruction in the K-12 virtual school environment. The study emphasized the need for parental support for student academic achievement due to the lack of physical presence of teachers and the time students spend learning in the home. The instrument was found to be valid in each of the four subscales: parent encouragement, parent modeling, parental reinforcement, and parental instruction. Based on the validity of the parental involvement instrument, the researchers suggest integration of a parental encouragement mechanism along with course design and teaching process as a support for student-teacher interaction, student’s self-confidence, and self-discipline. Parental support is an extrinsic motivator, which may be used to internalize the value of education.

A study by Midgley, Anderman, and Hicks (1995) compared elementary teachers and middle school teachers related to school culture and exposure to motivational constructs. The study found that middle school teachers and students perceived school culture as performance-based and less task focused compared to elementary teachers and students. The implication for developing more intrinsic motivation in students was increasing the relative use of task-focused instructional strategies compared to performance focused instructional strategies (Midgley et al., 1995). Another finding in this study was “Middle school teachers feel significantly less efficacious than elementary teachers” (Midgley et al., 1995, p. 106). Midgley et al. (1995) suggested two potential reasons for a shift in teacher efficacy in the middle grades. First, the challenges confronting adolescent children may result in more difficulties in the learning environment for teachers and students. Secondly, teacher support for successful
implementation of innovative curriculum may be an issue. Wang and Holcombe (2010) raise the possibility of an increased emphasis on competition, comparison, and pursuit of higher grades (i.e., accountability pressures) may erode a sense of students’ emotional connection to schools. These performance goal orientations provide external pressure to do better than others creating stress for teachers and students. Wang and Holcombe (2010) found, “competitive learning environments (performance goal structures) decreases participation, and undermines the development of sense of school belonging, and diminishes the value students place on school” (p. 652).

Self-regulation

The ability to understand and control one’s own learning is self-regulation. According to Miltiadou and Savenye (2003) review of research literature, self-regulated learners use three components to overcome educational difficulties.

Patrich and DeGroot (1990) indicated that self-regulated learning consists of three components that affect academic performance: (a) cognitive and metacognition strategies, (b) resources management and control, and (c) motivation (Miltiadou & Savenye, 2003, para. 37).

These three components identified Miltiadou and Savenye (2003) are explored in more detail in the following sections.

Cognitive and metacognition strategies. Cognitive and metacognitive strategies engage the student in behaviors and thought processes to organize and process information. These students tend to be goal oriented and perceive themselves to be intrinsically motivated. According to Miltiadou and Savenye (2003), self-regulated students employ metacognition strategies related to outcome goals and process goals. Outcome goals relate to learning and understanding to satisfy curiosity and interests.
Process goals include activities such as monitoring, controlling, planning, organizing, transforming, rehearsing, and memorizing. Miltiadou and Savenye (2003) cited research from Pintrich, Smith, Garcia, and McKeachie (1991) and Talbot (1997) on cognitive and metacognitive strategies found in self-regulated learners:

- “Identifying and listing items to be learned
- Actively reading assignments according to a plan
- Listening to lectures
- Rewriting and editing class notes
- Comparing reading assignments with lecture notes
- Summarize, paraphrase and find their own examples in real-world events and problems
- Outlining, grouping and selecting the main idea from reading passages
- Paying attention to headings, subheadings, diagrams, tables, figures, charts, and graphs
- Apply previous knowledge to new situations in problem-solving and decision-making, or critical evaluations,” (as cited in Miltiadou & Savenye, 2003, para. 39).

Cognitive and metacognition strategies involve rehearsal, elaboration and organization and positively impact academic learning.

**Resource management strategies.** Resource management strategies are the second component of self-regulation according to Miltiadou and Savenye (2003). Self-regulated learners are able to:

“(a) manage and regulate their time and study environments, (b) monitor their effort, (c) learn from peers, and (d) seek help and support from peers and
Scheduling time to study in advance is important to self-regulated students. Dates are identified for course events such as tests and presentations along with time to study each day and looking ahead in terms of weeks and months. The self-regulated learner determines a place to study to minimize distractions and gain access to information needed. Planning time and place of learning gives the student control of their learning situation. Self-regulated learners persist through boring tasks and distractions. Learning from peers includes exchange of ideas, asking questions, seeking clarification and sharing resources available. Self-regulated students are able to seek help from their peers and engage in constructive and meaningful dialogue.

**Motivation.** Motivation is the third self-regulation component identified by Miltiadou and Savenye (2003). Self-regulated students make many decisions on their own and therefore, exhibit control of when they will learn, what they will study, where they will learn, and how they will learn (Miltiadou & Savenye, 2003). Self-regulated students perceive themselves as self-efficacious and goal directed. The self-regulated student often achieves at higher academic levels compared to students not self-regulated (Miltiadou & Savenye, 2003).

Pintrich and De Groot (1990) summarize self-regulation as having three slightly different components compared to Miltiadou and Savenye (2003). The first component of motivation for learning is the use of metacognition strategies. The second component is the students’ management and control of their effort. And finally, the third component of self-regulated learning is the students’ conceptualization to learn, remember and
understand content and processes as a result of using cognitive strategies. The three motivational components linked to self-regulated behavior described by Pintrich and De Groot (1990) are further described from an adaptation of expectancy-value theory.

The theoretical framework for conceptualizing student motivation is an adaptation of a general expectancy-value model of motivation (cf., Eccles, 1983; Pintrich, 1988, 1989). The model proposes that there are three motivational components that may be linked to the three components of self-regulated learning: (a) an expectancy component, which includes students’ self beliefs about their ability to perform task, (b) a value component, which includes students’ goals and beliefs about the importance of a task, and (c) an affective component, which includes students’ emotional reactions to the task (Pintrich & De Groot, 1990, p. 33).

The first motivational component described by Pintrich and De Groot (1990) is the expectancy component. The students believe that they are control of their learning and their effort will result in expected achievement outcomes. The task value component relates to the learners’ interests and meaningfulness. The third component of motivation is the affective component. The emotional feelings of the learning task may be positive or negative. Test anxiety is an affective component and may result in physiological conditions such as nervousness.

Savery (2005) examined characteristics of effective online teachers. According to Savery (2005) successful online learners are skilled at learning self-regulation skills. The online environment may be adaptive in communicating directly with the instructor. The opportunity to internalize values of the instructor offers students an opportunity to practice regulatory skills that may have been thwarted in the traditional environment.

Holcomb et al. (2004) point to the benefits of asynchronous communication offering the student choice of time to respond. This benefit is transformative allowing the student to work at a pace that is self-determined, being somewhere between boredom
(i.e., pace is too slow) and frustration (i.e., pace is too fast). The choice of instructional pace permits self-regulation, which is more internally motivated.

A study by Aragon et al. (2002) studied graduate students in regard to learning style preference and cognitive controls. Cognitive controls represent the processes used to reason about information, sometimes described as making sense out of the world we engage with. In their review of literature, psychologists have found individual differences in cognitive controls. These include

- field dependence versus field independence,
- leveling versus sharpening,
- conceptual versus perception,
- scanning versus focusing,
- reflectivity versus impulsivity, and
- tolerance versus intolerance (Aragon et al., 2002, p. 229).

According to Aragon et al. (2002), learning style is a combination of the learner’s motivation, task engagement, and his or her habits of processing information (i.e., cognitive controls). The study compared two graduate classes, a face-to-face group and online group to determine if learning styles could predict success. Aragon et al. (2002) found “learners can be just as successful in the online environment as they can be in the face-to-face environment, regardless of learning style preferences” (p. 243). In the discussion of their findings, Aragon et al. (2002) suggest online learners must use reflective observation (i.e., learning by watching and listening) and abstract conceptualization (i.e., learning by thinking) due to the course design and delivery.
These skills, which include watching, listening, and thinking may benefit from *anytime*, *anyplace*, and the *any pace* nature of online learning (Aragon et al., 2002). From a motivational standpoint, the online students had more autonomy to practice their self-regulation from an internal locus of control.

Zhang and Quintana (2012) address the support needs of middle school and high school students compared to college students. Middle school and high school students lack the cognitive and metacognitive skills needed for online inquiry. Without support for self-regulation, researchers observed several problems among sixth grade students completing an online inquiry assignment. The findings support the use of self-regulation, improved metacognition, and efficiency in learning. Online students completing online inquiry tasks using self-regulatory support software were effective in completing online inquiry tasks, whereas; sixth graders using unstructured methods (e.g., notebook paper and pencil) were ineffective at completing the online inquiry tasks.

**Psychological Predictors of Successful Online Students**

Several studies have predicted the likelihood of success or failure in online instruction (Blazer, 2009; DeTure, 2004; Lin et al., 2008; Ronsisvalle & Watkins, 2005; Roblyer et al., 2008; Swan, 2001; Wang & Newlin, 2002; Willging & Johnson, 2009; Wojciechowski & Palmer, 2005). These studies tend to follow two pathways. First, studies have predicted success of online students based on student characteristics and motivational factors. Secondly, studies follow non-student variables such as course characteristics and environmental background. Most studies consider a combination of student characteristics and non-student variables.
Blazer (2009) reviewed effective pedagogical approaches for delivery of online instruction and found many of the same concepts predicting success in traditional instruction was also found in online instruction. A well-designed course and developed instructional experiences were important in either format. A comprehensive list of best practices for online instruction was cited earlier in Chapter II (cf. Blazer, 2009).

Predicting online learner success based on global traits (i.e. learning style, sensory preference, and locus of control) have very little to offer according to Wang and Newlin (2002). Tracking students’ course activity, especially early in the course is predictive of the final grade (Wang & Newlin, 2002). Activities included number of home page visits and forum postings (e.g. student statements and frequency of statements). A lack of presence was an early warning sign of less than optimal performance. Wang and Newlin (2002) suggest the following list as having potential low performance.

- Does the student have an external locus of control?
- Does the student have low self-efficacy regarding their computer skills?
- Does the student have low self-efficacy regarding the course content?
- Does the student lack previous experience with online courses?
- Did the student enroll solely because of course availability?
- Does the student have a low login rate for the course home page?
- Is the student reading and writing few messages on the class forum?
- Is the student quiet or nonresponsive in the online chat room? (Wang & Newlin, 2002, para. 23).
Lin et al. (2008) reviewed research to examine how social and motivational attributes influence online learning experiences (p. 1). Social presence was found to be a significant predictor of learning satisfaction. Social presence included the ability to navigate and connect with others. Social ability was thought to be the use of collaboration skills and develop a positive relationship with peers online. Another study reviewed by Lin et al. (2008) found self-efficacy for the course content and self-efficacy for online technology use over time predicted course satisfaction. Task value and goal orientation (i.e., being more intrinsic rather than extrinsic) were significant predictors for course satisfaction, Lin et al. (2008).

DeTure (2004) conducted research to determine if cognitive style described as field independence and technology self-efficacy predict student success in terms of grade point average (GPA). DeTure (2004) found no relationship in technology efficacy and higher GPA. Likewise, the relationship between cognitive styles favoring field independence was not able to predict GPA.

Swan (2001) studied learning satisfaction related to relationships with students, interaction with the instructor, and course design features among college students. The findings predicted course satisfaction and perceived learning. Findings were significant for consistency among course modules, having a greater percent of the course grade on discussion with the instructor, and a greater percentage of the course grade based on discussion with students. However, “the greater percentage of course grade that was based on cooperative or group work, the less students thought they learned from the course” (Swan, 2001, p. 326).
Willging and Johnson (2009) examined reasons why college students dropped out of online courses. In contrast of predicting success, this study sought to predict failure and therefore, is relevant to motivational concerns. Reasons given for taking online college courses were consistent with much of the research literature such as, “flexible schedule, the convenience and effectiveness of taking online courses, the good fit with their goals, for professional development …” (Willging & Johnson, 2009, p. 123). Reasons for leaving online college courses were described as personal, job-related, and program-related. These reasons included too many low-level assignments, too difficult working on the group assignments, lack of one-to-one interaction with the instructors and students, the academic program was too difficult or demanding, lack of interest in the material, and the program didn’t meet expectations.

A research study by Wojciechowski and Palmer (2005) studied the relationship between community college students’ success in online courses and various student demographics and other learner characteristics. The five findings were summarized as follows.

- Grade point average was found to have the greatest connection. Prior academic success is a significant predictor of success in online classes.

- Having an orientation session was found to be a predictor of success in online courses. Attending the orientation class created a sense of commitment to a given class.

- The third strongest correlate involves the number of previous withdrawals from other classes.

- The fourth strongest correlation was between the student’s ASSET Reading scores and the final grade in the online course. The reading assessment was able to predict whether a student would receive a C or better grade in the course.
- There was also a positive and statistically significant relationship between previous success with online courses (Wojciechowski & Palmer, 2005, p. 17).

Ronsisvalle and Watkins (2005) reviewed studies about motivation of online learners. Motivation was instrumental to the success of online students according to administrators, counselors, students and instructors representing the Illinois Virtual High School (Ronsisvalle & Watkins, 2005).

Similar studies involving college students’ attributes of success to include self-efficacy, self-regulatory skills, locus of control, and motivation (Aragon et al., 2002; Holcomb et al., 2004; Parker, 2003; Wang & Newlin, 2002). Ronsisvalle and Watkins (2005) suggests more research is needed to determine if the predictors of online success apply to younger and less mature students. According to Ronsisvalle and Watkins (2005), “The role of self-regulation, self-efficacy, motivation, and other personal and psychological characteristics in student performance may, however, be mediated by many variables related to the design of the online experience” (p. 120).

Roblyer et al. (2008) developed and instrument to predict online success among high school students. The study was conducted during the 2005-2006 school year with 4,110 students attending 196 online courses offered by the Virtual High School (VHS). Student participants ranged from grades 6-12 with over 80% being juniors or seniors. Previous online experience was reported by 62% of the participants, with the remaining 38% of participants taking online courses for the first time. Nearly 94% of the participants had access to a computer at home and 83% of the participants reported having virtual school class time during the school day. The participants completed the Educational Success Prediction Instrument (ESPRI) measuring hypothesized factors...
including organizational skills, achievement beliefs, responsibility, risk-taking, and technology skills/access using a sixty-item Likert scale (Roblyer et al., 2008). Pass/fail status was the dependent variable and considered to be a grade of A, B, or C. Various combinations of factors were tried to determine if they were significantly related to passing or failing the course. According to Roblyer et al. (2008), the model is highly effective in predicting passing grades and modest in predicting failing grades. The results from Roblyer et al. (2008) were significant for predicting online academic success (receiving a grade C or higher) based on self-reported grade point average (GPA).

Student characteristics (e.g., technology access/efficacy, achievement beliefs, and organizational skills were found to be significant in predicting online success. Environmentally, having a computer at home and virtual school time during the school day were found to be significant predictors of success in online courses.

The study by Roblyer et al. (2008) included motivational constructs relating to self-efficacy (i.e., I know how to use an Internet search engine to locate information), goal orientation (i.e., I find that I try harder if I set high goals for myself), self-regulation (i.e., I do not care what other people think of me if I make mistakes), and intrinsic motivation (i.e., I am not afraid of making mistakes if I am learning to do new things). Based on the results of this study, Roblyer et al. (2008) offer a tool (ESPRI) that may be useful in predicting success of high school students taking online courses. Roblyer et al. (2008), suggested future studies add course design features to the ESPRI instrument based on their review of research literature.
Rationale, Description, and Application of Self-Determination Theory

Self-determination theory (SDT) is well established with research in education and medicine across cultural and gender contexts (Deci & Ryan, 2000). SDT shares many common elements with other theories of motivation. However, there are distinct differences from other popular theories. SDT explores basic human needs (i.e., competence, relatedness, and autonomy) and the types of motivation that serves these basic needs. In short, SDT is a macro theory of human motivation. Deci and Ryan (2000) provides a non-exhaustive list of theories related to SDT including: social learning theory, terror management theory, control theory, goal theory, flow theory, and attachment theory.

According to Deci and Ryan (2000), SDT theory posits that human motivation requires satisfaction of needs for competence, autonomy, and relatedness to facilitate growth and positive outcomes.

Rationale for Self-Determination Theory

Hodges (2004) proposed three motivational theories for online learning experiences: attribution theory, expectancy-value-theory, and goal theory. Unfortunately, few online learning studies were found in the research literature related to these theories. However, the theories proposed by Holmes (2004) share many of the same motivational constructs found in SDT. Likewise, Miltiadou and Savenye (2003) identified several motivational constructs for online learning success, which relate closely to components of SDT theory. Motivational constructs include self-efficacy, locus of control, attributions,
goal orientation, intrinsic and extrinsic motivation, and self-regulation (Miltiadou & Savenye (2003).

Chen and Jang (2010) tested a model of SDT in a motivational study of online adult students. The students enrolled in two online certificate programs to become eligible for employment as public school special education curriculum consultants. The study measured contextual support, needs satisfaction, motivation, and learning outcomes. Chen and Jang (2010) hypothesized SDT predicting learning outcomes (i.e., hours per week studying, number of web-page hits, expected grade, and final grade). The study’s hypotheses were not accepted, however the SDT model validated support for autonomy, relatedness, and competence, which predicted learner satisfaction among online learners. The validation of SDT as a model to study motivation of online learners is discussed in detail later in Chapter II.

A research study by Ratelle and Duchesne (2014) used an SDT model to explore the satisfaction needs of early to late adolescent children and their adjustment in a traditional school. This longitudinal study focused on needs for competence, relatedness and autonomy, which are the three domains of SDT. The study from Ratelle and Duchesne (2014) is relevant in the current study exploring the psychological experiences of middle school age students. More details from this study are described later in Chapter II.

A phenomenological study of high school virtual students by Green (2013) found a need for understanding and support in the transition from high school to college
discussed earlier in this chapter. This finding is consistent with SDT basic need of relatedness.

Three studies were reviewed in Chapter II relating to needs satisfaction of online learners (Lin et al., 2008; Roblyer et al., 2008; Swan, 2001). The need for satisfaction in these studies is related to the basic human needs for autonomy, relatedness, and competency, supporting the application of SDT among online learners.

Another important reason for selecting SDT in this study was the application of SDT with interpretive phenomenological research. A study by Gillison, Osborne, Standage, and Skevington (2009) combined phenomenology and SDT to explore the experiences of adolescent students engaged in exercise. The study by Gillison et al. (2009) revealed personally meaningful experiences and motivational characteristics of ninth-grade adolescent students across gender. This study served as a model for the combination of interpretive phenomenological research and SDT in this study of adolescent student experience in the virtual school study setting. More details of the Gillison et al. (2009) study are discussed later in Chapter II. The use of the interpretive phenomenological method is discussed in Chapter III.

A Description of Self-Determination Theory

Self-determination theory (SDT) takes into account goals of individuals and their basic needs. A comprehensive description of SDT is presented here from Deci and Ryan (2000).

Deci and Ryan (2000) identified three basic psychological needs: competence, relatedness, and autonomy. These needs are considered innate and universal as opposed
to learned needs. Learned needs may be classified as achievement, affiliation, or power, which varies among individuals. In some cases, learned needs result in goal seeking contingent upon approval from others, such as external signs of wealth. According to Deci and Ryan (2000), these extrinsically motivated needs (e.g., attaining wealth, fame and image) can yield less direct need satisfaction and be a distraction to basic psychological needs.

Deci and Ryan (2000) defines competence, relatedness, and autonomy from a review of psychological research literature.

**Basic need for competence.** Competence is almost exclusively related to self-efficacy to the extent which people feel capable and able to engage in behaviors leading to a desired outcome. Deci and Ryan (2000) describe the development of competence from an early age:

Beginning with early motor play, manipulation of objects, and exploration of surroundings, the general competence tendency extends and differentiates towards activities and practices that are specifically relevant to the effective social interaction and physical survival … competence prepares people for new situations and the demands of the physical world (p. 252).

A sense of competence is the result of completing challenging tasks (Deci & Ryan, 2000).

**Basic need for autonomy.** Autonomy refers to volition, “the organismic desire to self-organize experience and behavior and to have activity be concordant with one’s integrated sense of self” (Deci & Ryan 2000, p. 231). Volition is to act according to will. Autonomy is related to integration of freedom to exercise choice.
Basic need for relatedness. Relatedness refers to the desire to feel connected to others, “to love and care, and to be loved and cared for” (Deci & Ryan, 2000, p. 231). Relatedness is a sense of belonging and appears to have a role in supporting autonomy and competence. People may enjoy activities in isolation such as hiking or personal hobbies by choice without sacrificing relational support. Relatedness may act like a backdrop of feeling secure from either a proximal or distal situation (Deci & Ryan, 2000).

SDT considers reasons why individuals pursue goals. For instance, why elementary students do their homework and why patients take their medicine may become more explicative using an SDT model of inquiry. Deci and Ryan (2000) theorize individuals will have uniquely situated responses to why they pursue goals. Furthermore, their response to why questions represent different regulatory styles ranging from feelings of anxiety to enjoyment.

Deci and Ryan (2000) posits basic needs of competence, relatedness, and autonomy is essential for growth, integrity and well-being. Hence, SDT is an organismic view of innate needs rather than acquired motives. According to Deci and Ryan (2000), if basic needs are unmet, then non-optimal psychological outcomes threaten well-being. Deci and Ryan (2000) found that organismic processes hindered by one’s context such as controlling, over-challenging, and rejection experiences will result to some degree of utility under non-supportive conditions. The utility is manifested as defensiveness, or self-protection. The degree may be withdrawing concern for others to more extreme antisocial activity. According to Deci and Ryan (2000), these negative behaviors are
compensatory for mediating unfulfilled needs. In contrast, organismic processes supported by self-controlling means enhance the abilities of individuals to achieve higher levels of self-determination and optimal outcomes (Deci & Ryan, 2000).

SDT has life-span implications based on the fulfillment of present basic needs and how their developmental histories predict whether people will display vitality and health (Deci & Ryan, 2000). A more contemporary view of basic needs from Richards (2016, March 22), derived from Maslow’s Hierarchy of Needs and related therapeutic models include certainty, variety, significance, love and connection, growth, and contribution. These basic needs invite a rich and deep investigation of meaning uniquely situated in context, age, and gender. Many of these basic needs and their derivatives are consistent with the three need domains described by SDT (i.e., competence, relatedness, and autonomy).

Deci and Ryan (2000) makes a distinction between unmet physiological needs compared to unmet psychological needs. A hungry person (i.e., physiological need) will concentrate on satisfying hunger, even if other behaviors must be put aside. The individual will likely concentrate on satisfying the hunger need until it is met. Unlike physical needs satisfaction, psychological needs are more easily thwarted. Thwarting psychological needs may result in defensiveness and seeking alternatives to need satisfaction. Consider an overweight person in a cycle of failed diet plans. Alternatives such as smoking or sporadic binge eating may undermine healthy dieting with significant consequences for vitality, integrity, and well-being.
**Types of goal pursuits.** SDT considers the *what* (i.e., content) and the *why* (i.e., process) of goal pursuits. The content of goal pursuits is related to intrinsic or extrinsic aspirations. Process goals involve types of self-regulation and internal versus external control of motivational behaviors.

Content goals may be interesting or boring, culturally sensitive or insensitive, gender specific or non-gender specific, personally meaningful or relatively empty of personal meaning, and so on. The content goals are derived from external sources (i.e., extrinsic) or internal sources (i.e., intrinsic). Content goal in school settings may be described as achievement goals or performance goals. The content of goals may have varying task value. Highly valued tasks tend to be more intrinsically motivated. Social groups and relationships with others influence the task value of goals (Deci & Ryan, 2000).

Process goals reveal the reasons why motivations exist and the regulation associated with the individual’s effort. Students doing their homework to avoid punishment are controlled extrinsically, whereas; students doing homework expressing their interest in the topic tend to be more intrinsically motivated.

According to Deci and Ryan (2000), examining the content goals and process goals reveals the individual’s self-regulation and whether the goals are oriented extrinsically or intrinsically. “SDT predicts that the content of goals and the reasons why people pursue them can affect well-being, and that, because content and process relate to underlying satisfaction versus thwarting of basic needs, covariation between content and process will typically occur” (Deci & Ryan, 2000, p. 246). In other words, the function
of pursuing a goal may be for the regulatory experience rather than the content of the goal. The optimal situation would be intrinsically motivated individuals acting autonomously for enjoyment without external controls.

**Differences between intrinsic and extrinsic motivation.** Deci and Ryan (2000) argue that “an interesting activity is intrinsic motivation and important activities are well-internalized, extrinsic motivation” (p. 230). Intrinsic activity is interesting and enjoyable. There is no external influence necessary for intrinsic motivation to occur. Interesting activity is important for need satisfaction and well-being. If external controls influence the quality and persistence of engagement in the activity, the individual is externally motivated. Interesting activity can be enjoyable, yet the joy may be related to an external reward. Autonomy and competence are necessary for pure enjoyment resulting in intrinsic activity. An example from Deci and Ryan (2000) is a piano player freely engaged in playing a piece of music considered to be enjoyable, satisfying needs for competence and autonomy. Forcing the piano player to play a piece of music is not likely to meet these same needs for the sake of enjoyment. The act is no longer for pure enjoyment as there are external controls and expectations controlling the pianist’s behaviors. The act of playing the piano may be extrinsically important, being rewarded for services. However, the reward changes the act from being intrinsic motivation to extrinsic motivation.

**Motivation and autonomy.** Intrinsic motivation involves competence and autonomy. In other words, intrinsic behaviors are freely engaged out of interest. Studies have found intrinsic motivation to be undermined by extrinsic rewards (Deci & Ryan,
Extrinsic rewards tend to have controlling features of rewards placing new demands on autonomy. The individuals may perceive a shift in the locus of causality. External causes of behavior may be the use of threats, surveillance, and evaluation, which undermines intrinsic motivation. The use of monetary rewards is another undermining condition with similar consequences. According to Deci and Ryan (2000), studies have found rewards and threats decrease intrinsic motivation, lessen creativity, and diminish problem-solving abilities. On the other hand, providing choice and acknowledgement of feelings provides a sense of freedom and self-initiation satisfying the need for autonomy and increases intrinsic motivation (Deci & Ryan, 2000).

**Motivation and competence.** Perceived competence is necessary for any type of motivation. “Self efficacy theory is almost exclusively concerned with competence” (Deci & Ryan, 2000, p. 257). Increasing autonomy enhances the pursuit of competence. Deci and Ryan (2000) summarize intrinsic motivation and autonomy as “people freely engaging in activities that they find interesting, provide novelty, and optimal challenge” (p. 235). Hence, individuals successfully completing challenging tasks with volition feel a true sense of competence. Matching a learning task with ability and choice options is fundamentally important for improving achievement. Events that reward or threaten individuals’ activities undermines intrinsic motivation while events that foster choice tend to enhance intrinsic motivation (Deci & Ryan, 2000). Consequently, “highly efficacious individuals may experience less than optimal well-being if they pursue and successfully attain goals with more extrinsic than intrinsic contents” (Deci & Ryan, 2000, p. 245).
Motivation and relatedness. Relatedness is the third innate need recognized by SDT. According to Deci and Ryan (2000), although more distant to intrinsic motivation compared to autonomy and competency, the role of relatedness appears to support maintenance of intrinsic motivation. Relatedness is a concept derived from attachment theory (Deci & Ryan, 2000). Hence, relatedness is a feeling of security and attachment to a warm and caring person. Children with caring adults, especially consistent loving mothers are more robust in their intrinsic motivation to explore their environment. A feeling of security is important across one’s lifetime and serves as a distal, yet necessary backdrop to the innate needs of competence and autonomy.

Relatedness is derived from social-contextual factors, which enhance or diminish intrinsic motivation by allowing or thwarting satisfaction of needs for competency and autonomy. Deci and Ryan (2000) recognize people engaging in intrinsically motivated activities such as hiking or playing solitaire do not necessarily depend on relatedness support to maintain intrinsic motivation. Nevertheless, a social aspect such as warm and caring teachers, affiliation with others, and a sense of belonging seem to be important to growth and well-being. Social constructs tend to transform the individual to endorse socially sanctioned values through a theory of internalization (Deci & Ryan, 2000).

Internalization of extrinsic motivation. Social environments are filled with characteristics, customs and schemas acting to assimilate cultural norms. Hence, individuals are faced with external regulations to integrate into society. According to Deci and Ryan (2000), accepting external regulations and endorsing the values of society leads to optimal functioning and allows self-determination. Accepting the values of an
ambient social group is the natural process of internalization according to Deci and Ryan (2000). The social values from external sources may become partially internalized or fully accepted.

SDT considers four different degrees of internalization within extrinsic motivation. From least internal to most internal are (1) external regulation, (2) introjection, (3) identification, and (4) integration. These four types of regulations are described in more detail here.

**External regulation.** External regulation is consistent with operant theory (Deci & Ryan, 2000). In this realm, people respond to rewards or punishments. Both conditions undermine intrinsic motivation. External regulation is controlled externally and usually results in poor maintenance or internalization once the stimulus (i.e., reward or punishment) is removed.

**Introjection.** Introjection is a partial internalization of external regulations. Unlike external regulation, the need to please others initiates the expected behavior to avoid punishment. The person’s sense of belonging may be at stake if the expected activity is delayed or abandoned. Examples from Deci and Ryan (2000) include self-worth or threats of guilt and shame. The individual may try to place blame for non-activity or low performance on contingent factors. Ultimately, the individual reckons with feelings of public self-consciousness or false ascriptions (Deci & Ryan, 2000). Like external regulation, introjection is not considered self-determined behavior. Since introjection is partially internalized, the individual is more likely to maintain the behavior.
over time compared to extrinsically regulated rewards and punishments (Deci & Ryan, 2000).

Identification. Identification is the process of accepting the value of a behavior, thus becoming more internalized (Deci & Ryan, 2000). An example would be exercising for health benefits. Although a person may not exercise for enjoyment, the individual recognizes and accepts the health benefits from exercising. The likelihood of maintaining the behavior is associated with commitment and performance. The degree of self-determined behavior is higher compared to external regulation and introjection. At the identification level of self-regulation, the behavior tends to be more internally controlled rather than externally controlled. In other words, there is a shift in causality of behavior (Deci & Ryan, 2000).

Integration. Integration is the fullest internalization of external motivation. According to Deci and Ryan (2000), it is possible for an individual to move from external regulation to integration over time. A fully integrated externally motivated individual shares cohesive factors with others, identifies with the values of the behavior, and seeks harmonious relationships. The task is important; however, the task is not engaged for the singular sake of enjoyment.

Defining amotivation. Amotivation is the lack of intentional behavior. According to a review by Deci and Ryan (2000), “people are likely to be amotivated when they lack either a sense of efficacy or a sense of control with respect to a desired outcome – that is when they are not able to regulate themselves with respect to behavior” (p. 237). Children with amotivation experience little or no satisfaction of basic needs.
The thwarting of basic needs results in negative outcomes (e.g., poorest performance and mental health issues). According to Deci and Ryan (2000), amotivated individuals imply a lack of autonomy, competence and relatedness.

A model of self-determination theory. The four types of extrinsic motivation fall on a continuum between amotivation and intrinsic motivation shown on Figure 4. Amotivation is the lack of any motivation. The state of amotivation is impersonal and not regulated. People with amotivational orientations thwart basic needs for competence and relatedness. According to Deci and Ryan (2000), controlled motivation and amotivation are related to learned helplessness, which is a sense of feeling powerless. In extreme cases, learned helplessness is related to underlying cause of depression (Deci & Ryan, 2000). On the other end of the continuum is intrinsic motivation, which is self-determined action for the sake of the experience. Intrinsically motivated people enjoy the novelty of the behavior and freely engage in the behavior.

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<th>Type of Motivation</th>
<th>Type of regulation</th>
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Factors in moving towards self-determined motivation. SDT suggests people will naturally seek socialization with social groups to meet their basic need of relatedness. Likewise, socialization improves feelings of competence. Supporting feelings of relatedness and competence encourages internalization at the introjection and identification levels of self-regulation (Deci & Ryan, 2000). However, to move to the integration level of regulation the individual must have the opportunity to freely process and endorse the values of the group (Deci & Ryan, 2000). The free choice of self-regulation is an active and constructive process that may be enhanced by social conditions leading to enjoyment of the activity. Moving to the integration level of extrinsic motivation can be facilitated (Deci & Ryan, 2000). Hence, supports that value free participation in a social activity may result in construction of personal meanings. The individual may opt to internalize ambient values and regulations with volition (Deci & Ryan, 2000). Integrating values and behavioral regulations adopted from social norms permits the individual to be efficacious and carry out authentic tasks with volition. In other words, the individual is inspired to freely (i.e., autonomy) engage in accepted behaviors (i.e., competence) that inspires other socially (i.e., relatedness).

In summary, relatedness and competence are not sufficient to move beyond the introjection self-regulation to the identification level of self-regulation (Deci & Ryan, 2000). Support for autonomy is needed to move to the identified and integrated levels of extrinsic motivation. The self-regulation tends to be more internally controlled compared to externally controlled by others. Excessive controls inhibit movement to the integration. On the other hand, facilitation supported with opportunities to freely process
and endorse the values, and voluntarily practice self-regulations may move individuals towards integration. Hence, a facilitator seeking to increase internalization of extrinsic motivation is concerned with human readiness and self-commitment.

The ‘what’ and ‘why’ of goal pursuits. Deci and Ryan’s (2000) theory of self-determination does not argue the different levels of need experienced by humans. Rather, SDT examines the individual differences in motivational orientation and the importance of goals contents. Why students engage in goal pursuits reflects their motivational orientation and can make a difference in educational outcomes. According to Deci and Ryan (2000) “Students pursuit of educational goals for autonomous, relative to heteronomous reasons has been positively associated with value endorsement, behavioral persistence, conceptual understanding, personal adjustment, and positive coping” (p. 240). The content of goals relates to interests and involve certain intrinsic aspirations such as personal growth, affiliation, and community contribution or extrinsic aspirations such as attaining wealth, fame and image (Deci & Ryan, 2000). Intrinsic aspirations are more closely related to needs for competence, relatedness and autonomy compared to extrinsic aspirations. An example of an extrinsic aspiration might be a teenager’s goal to purchase an automobile to impress others. The content of this goal may require a job resulting in less time devoted to education. Hence, the goal of purchasing a vehicle may actually distract the individual from other important needs. Individual differences in goal pursuits manifest the individual’s approach to needs satisfaction and are revealed by past experience versus thwarting (Deci & Ryan, 2000). Individual differences do exist on how experiences satisfy needs. These differences are context bound and the quality of
experiences varies. Hence, the degree of satisfaction of needs vary from one individual to the next.

**Application of Self-Determination Theory to Online Learning**

Chen and Jang (2010) developed and validated a SDT model as a predictor of self-determination and motivation for online adult students engaged in a teacher certification course. These researchers suggest that motivation is important in the online learning environment based on their review of literature. During their review, Chen and Jang (2010) found Deci and Ryan’s (2000) theory of self-determination applied to several contexts including physical education, general education, politics, religion, and health care. However, the application of SDT to the online learning environment was sparse. According to Chen and Jang (2010), SDT has been used in education to predict performance, persistence, and course satisfaction. In addition to these constructs, Chen and Jang (2010) recognized the potential of SDT to address learning problems, student attrition, and potential to prescribe contextual supports for motivational enhancement based on the individuals motivational process.

In Cheng and Jang’s (2010) study, contextual supports were characterized as flexible learning options and assessments, design of collaborative learning activities fostering peer interaction, and assisting students with self-regulation and learning strategies. Chen and Jang (2010) “hypothesized that contextual support positively predicts need satisfaction; need satisfaction in turn positively predicts self-determination. See Figure 5 for the standard paths connecting Chen and Jang’s (2010) hypothesis of need for contextual support and need for satisfaction related to SDT’s basic needs of
autonomy, competency and relatedness. The model does not include *relatedness support* as a contextual support need. Chen and Jang (2010) excluded relatedness support with the following explanation, “It is worth noting that relatedness support was not included in our model because autonomy and competency supports are more directly addressed by SDT … most SDT-based studies measured perceived relatedness rather than relatedness support (p. 743). Deci and Ryan (2000) indicated relatedness as having many roles such as security and internalization of values. As such, the need of relatedness is viewed as a backdrop supporting autonomy and competence, consistent with Chen and Jang’s interpretation.

**Need for contextual support measures.** The need for contextual support was measured by two scales (i.e., questionnaires). First, the Autonomy Support Scale measured the need for autonomy. This scale included questions such as, “I feel my

![Diagram](image)

instructor provides me choices and options” (Chen & Jang, 2010, p. 744). The 14-item Autonomy Support Scale revealed an internal consistency score ($\chi = .95$). Secondly, the Competency Support Scale measured the need for competency, which was adapted to be context specific. According to Chen and Jang (2010), students were asked opinions about online learning competencies and types of support they needed. Fifteen items were developed with one item eliminated that failed to differentiate low and high scores. The Competency Support Scale included questions such as, “I usually receive clear directions about how to finish my class activities and projects” (Chen & Jang, 2010, p. 745). Based on the participants in this study, the scale yielded a satisfactory internal consistency of ($\chi = .93$).

Need for satisfaction measures. The hypothesized need for satisfaction construct was measured by perceived autonomy, relatedness, and competence. Three previously validated scales were included in the study. Beginning with the six-item Perceived Autonomy Scale, participants responded to questions such as, “I feel a certain freedom of action in this online course” (Chen & Jang, 2010, p. 745). The Perceived Autonomy Scale received acceptable internal consistency ($\chi = .69$). The nine-item Perceived Relatedness Scale asked questions such as, “I feel my classmates care about each other” and revealed an internal consistency of ($\chi = .86$) for this study (Chen & Jang, 2010, p. 745). The final scale measured the need for satisfaction construct using the Perceived Competence subscale of the Intrinsic Motivation Inventory. The items were slightly adjusted for context. For example, the original item “I am satisfied with my performance at this task” has been changed to “I am satisfied with my performance in this online
course” (Chen & Jang, 2010, p. 745). A reliability test revealed satisfactory internal consistency of ($\chi = .86$).

**Motivation/Self-determination measure.** The change in motivation or level of self-determination was measured by the Academic Motivation Scale (AMS), which was developed based on SDT. The AMS is made up of seven subscales each containing four items. Intrinsic motivation included 12 items in three of the subscales. Amotivation and three types of extrinsic motivation - external, introjected, and identified regulation were measured. Modifications were made to fit the context such as, “Because I think that a college education will help me better prepare for the career I have chosen” to “Because I think that an online class will help me better prepare for the career I have chosen” (Chen & Jang, 2010, p. 745). The AMS was found to have satisfactory internal consistency across subscales ranging from $\chi = .76$ to .96.

**Learner outcomes.** Chen and Jang (2010) hypothesized six learner outcomes in four categories would be predicted by the SDT model. The categories were (1) engagement, (2) achievement, (3) perceived learning, and (4) course satisfaction. There were two engagement outcomes. The first was a self-reporting of hours worked per week on the course, and the second outcome was the number of hits or times the student accessed WebCT™ content. The achievement category was measured by self-reports of expected grade and the final grade received in the course. Perceived learning was measured using the Perceived Learning Scale. The six-item scale included the sample question, “I learned to inter-relate the important issues in the course material” (Chen & Jang, 2010, p. 746). The Perceived Learning Scale has a high internal consistency.
(χ= .95) based on this study. The final category was course satisfaction measured by the Course Satisfaction Survey. A sample question from the survey was, “Overall, I am satisfied with this course” (Chen & Jang, 2010, p. 746). The Course Satisfaction Survey revealed internal consistency of χ=.93 in the study.

According to Chen and Jang (2010), “The purpose of this study was to test STD in an online environment” (p. 748). Results from Chen and Jang (2010) validated the SDT model. Needs satisfaction was directly predicted by contextual support. In other words, if the students feel they were supported for needs related to autonomy and competence, then they were satisfied with the course. Hence, SDT theory as an applied online learning model was confirmed as being a valid measure. However, the SDT model did not predict learner outcomes as expected. See Figure 6 for the structured pathways of the SDT model. Although the structured path between motivation/self-determination was not significantly related to learning outcomes, the need for contextual support, and need for satisfaction were related to some of the learner outcomes. These more direct paths between the need for contextual support and need for satisfaction to learner outcomes were not expected. See Figure 6 for the statistically significant pathways. Chen and Jang (2010) stated, “It appears that in the studied online learning context, contextual support and need satisfaction have more salient influence on learning consequences” (p. 750). The study revealed amotivation, intrinsic motivation and extrinsic motivation as distinct constructs based on the Academic Motivation Scale. Chen and Jang (2010) stated, “this study supported SDT’s main theorizing that human
Figure 6. The hypothesized SDT model and predicted learner outcomes. All structured pathways were significant between Contextual Support, Need Satisfaction, and Motivation/SD. Note: Motivation/Self-Determination was not significantly related with any of the six Learner Outcomes. Statistically significant pathways with the learner outcome were:

- Contextual Support and Number of Hits $\beta = -.79$ (negatively related)
- Contextual Support and Expected Grade $\beta = -.67$ (negatively related)
- Contextual Support and Course Satisfaction $\beta = .81$ (positively related)
- Need Satisfaction and Hours per week studying $\beta = .44$
- Need Satisfaction and Number of Hits $\beta = .97$
- Need Satisfaction and Expected Grade $\beta = .80$
- Need Satisfaction and Perceived Learning $\beta = .62$

motivation is a complicated, multidimensional inner process, as opposed to a singular, monolithic construct” (p. 750).

Based on the results, Chen and Jang (2010) recommend online instructors have an open dialogue with their students, create student-centered activities promoting students’ free expression including their thoughts, feelings, and concerns. Furthermore, Chen and Jang (2010) suggest the use of multiple teaching strategies, flexible learning options, flexible assessment opportunities, collaborative learning activities, support for peer interaction, and assistance with student regulation strategies.

Applying SDT to Adolescents’ Perceptions of Middle School

Wang and Holcombe (2010) conducted a short-term longitudinal study of 1,046 seventh and eighth grade students in a diverse urban school. The study explored three dimensions of school engagement: (1) school participation, (2) sense of identification with the school, and (3) use of self-regulation strategies over a two-year period. Three components of school engagement were identified in their review of literature (i.e., behavioral engagement, emotional engagement, and cognitive engagement). Each are described as follows. Behavioral engagement is defined as the actions students direct towards the school and learning. These actions include positive conduct such as attending classes and completing schoolwork, and the perceived effort and concentration. Emotional engagement involves affective reactions and a sense of identification with the school. Cognitive engagement is related to the student’s self-regulation behaviors and approach to learning.
Wang and Holcombe (2010) focused on five environmental school characteristics thought to influence school engagement: promotion of performance goals, promotion of mastery goals, support for autonomy, promotion of discussion, and teacher social support. From the review of literature, Wang and Holcombe (2010) describe each of the five environmental characteristics in terms of school climate and academic achievement:

1. “Performance goal structures reflect to the extent to which students perceive that their teachers emphasize relative ability and social comparison among students, promote competition among students, and define striving for high grades as the main goal in learning.

2. Mastery goal structures foster student perceptions that their teachers emphasize self-improvement, reward effort, and value mastery as the main goal of learning (Anderman & Midgley, 1997).

3. Support for autonomy involves students’ perceptions that teachers provide opportunities to participate in decision making related to academic tasks and school governance and allow for student input into class discussion (Roeser, Eccles, & Sameroff, 1998).

4. Promotion of task-related discussion refers to students’ perceptions that teachers encourage students to interact and discuss ideas with one another during class.

5. Teacher social support describes whether students perceive their teachers to be supportive, responsive and caring (Burchinal, Peiser-Feinberg, Pianta & Howes, 2002),” (as cited in Wang & Holcombe, 2010, p. 636).

The study by Wang and Holcombe (2010) applied the theoretical framework of self-determination theory (SDT) and focused on school engagement and academic achievement as outcomes. SDT theory postulates that individuals seek experiences that fulfill needs for autonomy, competence and relatedness (Wang & Holcombe, 2010). See Figure 7 for the hypothesized path model containing components of SDT relating to school environment and student engagement. The structural equation model examined...
Figure 7. Hypothesized path model containing components of SDT relating to school environment and student engagement. Hypothesized path model for a two-year longitudinal study. Only significant paths ($p < .05$) are shown. Adapted from Wang & Holcombe (2010). Adolescents’ perceptions of school environment, engagement, and academic achievement in middle school. *American Educational Research Journal, 47*(3), p. 639.
the links between students’ perception of school environment, school engagement, and academic achievement over a two-year period. Their research questions were

1. How do students’ perceptions of school environment in the seventh grade affect their participation, school identification, and use of self-regulation strategies in the eighth grade? How do these three types of engagement affect their academic achievement in the eighth grade?

2. Do students’ participation, school identification, and use of self-regulation strategies in eighth grade mediate the association between perceived school environment in seventh grade and academic achievement in eighth grade (Wang & Holcombe, 2010, p. 639)?

Description of seventh grade questionnaire. The perceived environmental characteristics of school climate were measured during the seventh grade using a questionnaire from the Maryland Adolescent Development Context Study (MADIC). The students responded to each statement ranging from 1 (almost never) to 5 (almost always). An example of the promotion of discussion construct question is, “How often do students get to discuss their work in class?” All parameter estimates were significant at \( p < .001 \). The 17-item questionnaire was administered to determine their perceptions related to five environmental constructs: (1) performance goal structure, (2) mastery goal structure, (3) support for autonomy, (4) promotion of discussion, and (5) teacher social support.

Description of eighth grade questionnaire. In year two of the study, the same student cohort group responded to a follow-up questionnaire. The follow-up survey measured school engagement outcomes in three areas: (1) school participation, (2) school identification, and (3) use of self-regulation strategies. The school engagement outcome was measured by three subscales for school participation, school identification, and self-
regulation strategies. The 14-item school engagement survey was selected from Wang and Holcombe’s (2010) review of literature and was found to be reliable and valid in prior research. The questionnaire responses ranged from 1 (strongly disagree) to 5 (strongly agree). A sample question from the use of self-regulation construct is, “How often do you try to decide what you are supposed to learn, rather than just read the material when you are doing school work?”

Description of academic achievement outcome in eighth grade. The academic achievement outcome was measured by the students’ grade point average. The researchers in this study were interested in knowing if higher levels of school engagement (i.e., school participation, school identification and use of self-regulation) predicted academic achievement in eighth grade. Furthermore, the research sought to determine if there was a relationship between the students’ perceived school environment in seventh grade and their perceived level of school engagement in the eighth grade. Wang and Holcombe (2010) hypothesized

(a) greater emphasis on performance goal structure will be associated with lower levels of school engagement;

(b) greater emphasis on mastery goal structure, higher levels of support for student autonomy and discussion, and greater emotional support from teachers will be associated with higher levels of school engagement; and

(c) school engagement will mediate the relationships between the five dimensions [school environment characteristics] of school climate and academic achievement (p. 640). Brackets added for clarification.

Findings from the study. Wang and Holcombe (2010) found that perceptions of school environment in the seventh grade contribute to school engagement in the eighth grade, which in turn influenced the student’s academic achievement in eighth grade.
However, students in seventh grade contribute differently to the three types of school engagement in eighth grade. Another finding was that each type of engagement effects academic achievement differently.

Discussion of results. The study by from Wang and Holcombe (2010) confirms performance goal structure decreases school participation, undermines sense of belonging, and leads to lower academic achievement. Another finding in this study was the promotion of performance goals, mastery goals, and discussion with teachers is positively associated with self-regulation strategies. Unexpectedly, support of autonomy and teacher social support was not associated with self-regulation use (Wang & Holcombe, 2010).

In their discussion, Wang and Holcombe (2010) recognize performance goal structure could help students with their regulation from an external reference to do better than others. However, emphasis for competition and comparison in the pursuit of high grades may alienate students’ emotional connection to school. According to Wang and Holcombe (2010), more research is needed to assess the differential effects of performance accountability on different groups of students, including girls, boys, and students with different ethnicities and levels of privilege.

Another finding of the study was related to support for autonomy. Although autonomy support was not associated with self-regulation, increases in autonomy support attributed to an increase in the students’ sense of school identification.
In terms of relatedness (i.e., promotion of discussion and teacher support in this study), students reported support for relatedness increased higher levels of school identification and use of self-regulatory strategies.

An unexpected finding was teacher social support was not associated with students’ self-regulation. A possible explanation was offered by Wang and Holcombe (2010), “In our study, teacher support was focused on students’ perspectives of whether they could depend on teachers in the school for help when they had personal or social problems” (p. 655).

Lastly, the support for relatedness (i.e., promotion of discussion and teacher support) and support for autonomy were not associated with school participation. A possible reason for this finding is the mediating effect of performance goals, which is negatively associated with school participation (Wang & Holcombe, 2010).

The length of their longitudinal study (i.e., two-years) prompted Wang and Holcombe (2010) to consider limitations to their study. The longitudinal study comparing perceptions of school engagement may have been too short of a time period to determine the reciprocal effects of behavior, emotion, and self-regulation. Hence, a longer-term longitudinal study should be considered in future research.

Implications for practice. Wang and Holcombe (2010) suggest mastery goals usage rather than heavy emphasis on performance goal structures to improve student participation and a sense of emotional connection with the school. Teachers may enhance school engagement with promotion of self-improvement and individual mastery, rather than measuring students against benchmarks (Wang & Holcombe, 2010). Lastly,
Wang and Holcombe (2010) state, “The study of engagement as a multidimensional construct and as an interaction between the individual and school environment helps teachers to better understand the complexity of students’ experiences in school” (p. 656).

**Predicting Psychological Needs Satisfaction and School Adjustment**

A longitudinal study by Ratelle and Duchesne (2014) examined psychological need satisfaction spanning six years from early to late adolescents as a predictor of adjustment in school. This study incorporated SDT psychological needs satisfaction and adjustment in school. According to Ratelle and Duchesne (2014), the first goal of the study was to identify developmental patterns of psychological needs satisfaction (PNS) over six years from grade 6 through grade 12. The second goal of the study was to determine if an SDT model could predict school adjustment at the end of high school. Ratelle and Duchesne (2014) “expected that student trajectories with high levels of autonomy satisfaction would report the highest levels of academic, social, and personal development adjustment” (p. 391). Participants in the study were randomly selected and stratified by gender, rural or urban location, and socioeconomic status. The survey began with 6th graders during the 2005-2006 school years and continued as a cohort group to year 2011.

The following three subscales measured the domains of SDT (i.e., autonomy, competence, and relatedness) using a 7-point scale (1 = do not agree at all, 7= strongly agree). The satisfaction for need of autonomy included Academic subscale of the Perceived Self-Determination in Life Domains Scale. The satisfaction for the need of competence was assessed with the Academic subscale of the Perceived Competence in
Life Domains Scale, and the needs for relatedness was the Intimacy subscale of the Need for Relatedness Scale (Ratelle & Duchesne, 2014). The reliabilities of each subscale increased each year. Cronbach’s alphas and were above .70 except for year one of the autonomy and competence scale, which was .62 and .67, respectively (Ratelle & Duchesne, 2014). The Student Adaptation to College Questionnaire measured school adjustment. Of the 69-items, 21 items were selected for use in the study. The instrument measures academic adjustments, personal-emotional adjustments and physical stress. Each instrument used a 5-point scale ranging from 1 (does not apply at all to me) to 5 (applies to me very well).

The control variables in this study were anxiety and achievement. The researchers used the Worry/Oversensitivity subscale of the French–Canadian version of the Revised Children’s Manifest Anxiety Scale. Students answered yes or no to questions such as, “I worry most of the time” (Ratelle & Duchesne, 2014, p. 392). The Cronbach alpha in this study was .86. Academic achievement was self-reported in the subjects of math and French over the six-year study using a 1-100 scale.

Results of the study indicated students’ perceived satisfaction for competences, autonomy, and relatedness fluctuated from grade 6 to the end of grade 12. In other words, competence, autonomy and relatedness did not follow similar patterns. Students fluctuated heterogeneously across adolescence. For instance, some students would initially report low perceptions of competence in elementary and later report moderate levels of competence.
Another finding of the study reported students with higher trajectories for perceived autonomy, competence, and relatedness, stable over time, indicated the highest levels of social, academic, and personal-emotional adjustment at the end of high school. This finding prompted Ratelle and Duchesne (2014) to state, “These findings support self-determination theory” (p. 387).

An Application of Self-Determination Theory and Interpretive Phenomenology

A research study by Gillison et al. (2009), incorporated (SDT) with interpretive phenomenology to explore introjected regulation for exercise across gender in adolescence. This study applied interpretive phenomenology and self-determination theory with adolescent students. The methodology and theoretical construct from Gillison et al. (2009) served as a model for researching self-regulation experiences of adolescent students in the virtual school study setting. The Gillison et al. (2009) study demonstrated the use of a pre-interview instrument to select a sample of students matching the introjected motivational profile, which was referenced during latter portion of the semi-structured interviews. Two themes emerged from the study were gender differences, and motivational profile. Details from the Gillison et al. (2009) study are described next.

A review of literature described a trend of diminishing exercise as children move towards adulthood. According to Gillison et al. (2009), “Inactivity is implicated in the development of numerous health problems including cancer, cardiovascular disease and diabetes, and an increased risk for obesity” (p. 309). Due to these serious consequences, Gillison et al. (2009) developed a broad research question, “What reasons and goals for
undertaking sports and exercise underpin introjected regulation in adolescents? (p. 310). The results of the research may indicate how theoretical constructs may be “targeted to promote internalization of fitness-oriented exercise behavior” (Gillison et al., 2009, p. 318).

Gillison et al. (2009) sought students exhibiting introjected regulation. In other words, introjected students act to avoid feeling guilty, or to obtain contingent self-worth. According to SDT, introjected regulation is extrinsic and the causality of control tends to be external (Deci & Ryan, 2000). The student participants were selected based on high levels of introjected regulation determined by the Behavioral Regulation in Exercise Questionnaire (BREQ-2) questionnaire. Responses were recorded on a 5-point scale ranging from 0 (not true for me) to 4 (very true for me). The instrument was administered to 404 UK school children (mean age = 13.25 years, range 11-15 years) (Gillison et al., 2009). Students with the highest 15% scores were invited for interviews. Of the 47 students invited, 8 girls and 10 boys (mean age 14) participated in semi-structured interviews. Questions opened with inquiry about usual reasons for physical activity (i.e., sports and exercise) and eventually asking more theory-based questions near the end of the interview. The final question referred participants back to their questionnaire for what reasoning behind their responses such as “why they feel guilty if they skipped an exercise session,” and “why do they consider exercise as something they should do” (Gillison et al., 2009, p. 311).

Two themes emerged from the semi-structured interviews. The first theme explored how sport and exercise played different roles for adolescents by gender. The
second theme explored motivational profiles. Participants were asked about positive motivational factors encouraging participation in exercise and negative motivational factors that discourage quitting (Gillison et al., 2009). A partial examination of both themes demonstrated the potential of interpretive phenomenology applied to SDT in exposing experiences psychologically meaningful to the participants.

**Theme 1 - Gender differences.** Boys viewed sports and exercise as part of their social life, something you do to spend time with friends. Most boys agreed they would be less active if their friends were not active. Hence, social support was a strong motivator among the boys. However, to maintain bonds was also perceived as controlling, feeling obligated or seeking approval, and enhancing self-worth. Although boys tended to enjoy exercise and sport overall, decision to participate was internally regulated to gain peer acceptance. In other words, introjected regulation was driven by ego enhancement or contingent self-worth (Gillison et al., 2009). Consider the following response from a male participant.

P2[M]:  like I wasn’t too fond of football, but they needed another player, so I joined the team, and it’s good now, cause um, I’ve made more mates. Well, I’ve made mates that I wasn’t particularly fond of before (Gillison et al., 2009, p. 312).

According to Gillison et al. (2009), participant P2[M] was accomplished at playing rugby and football. He explained “reasons for taking part as ‘feeling fit’ and to spend time with friends” (p. 312). Participant P2[M] indicated feeling social pressure to participate in the sport, rather than his own preference. In this case, participant P2[M] was extrinsically motivated at the introjected level to gain contingent self-worth from the judgment of others. The need for relatedness with intimate others is a dimension of SDT.
Psychologically, participant P2[M] does not want to disappoint his peers and wishes to maintain social acceptance.

Gillison et al. (2009) described girls as being motivated differently than boys. A female participant reported being involved in after school sports clubs and participated in toning exercises she found from magazines at her home. Participant P4[F] did not allude to socializing with friends in her response to the question (i) why she took part, and partially attended to question (ii), her reasons for reporting introjected regulation to exercise:

P4[F]: (i) I do it because I know it’s important, and cause I think it’s good to maintain a healthy body really, and um I enjoy it, so it’s not really anything for me to cry over. Yeah, I think it’s good.

P4[F]: (ii) Um, I think maybe [I’d be letting] myself down if I stopped exercising because I know what I’m doing, and what I should be doing. Um, I think I’d really feel like I’d want to get out there and do something, cause I know I should be doing it. It’s not surprising, cause I know I should be doing it. It’s not something that you should be doing everyday, but I know I should be doing it most of the time (Gillison et al., 2009, p. 313).

Participant P4[F] did not indicate socializing with friends as a motivator for exercise. Rather, she described health benefits as the basis for her introjected regulation of behavior. Participant P4[F]’s response to question (ii) demonstrated partial internalization of doing exercise which tends to be externally controlled. According to Gillison et al. (2009), “the pervasiveness of introjected regulation towards exercise is highlighted by the participant’s frequent reference to what she ‘should’ be doing (p. 313). Another example from participant 4 described her introjected regulation for exercise:

(P4[F]): Sometimes when I feel lazy I can’t be bothered to do any exercise, but I know at school I should do it, and that I’ve got my time there, so I should do it then. (Gillison et al., 2009, p. 313).
**Theme 2 – motivational profile.** The second theme explored by Gillison et al. (2009) was the multidimensional nature of motivation from the sample group. Participants had different reasons for engaging in sport and exercise. Consider female participant P7[F], an avid horseback rider, in her reasons for (i) why she took part in sport and exercise, and (ii) why she’d feel bad if she did not exercise (i.e., the basis for her introjected regulation):

P7[F]: (i) I do horseback riding because, like, I enjoy it, cause like that’s what I’ve always wanted to do. And I do dance to keep up the muscles in my legs for horse riding.

P7[F]: (ii) Well I’d just think [if I stopped] I’d gain loads of weight. (pause) Because like basically, weight is the main issue for exercise. (pause) It’s the main reason I do it (Gillison et al., 2009, p. 314).

Participant P7[F]’s demonstrated intrinsic motivation for her sport, horseback riding and supported by her training activity (i.e., dancing). These activities are enjoyable to participant P7[F] and are controlled internally. Gillison et al. (2009) found that participant P7[F]’s preferred activities also address a concern for weight control, which formed the basis of her introjected regulation, based on physical appearance. Improving her appearance (i.e., weight loss) was externally motivated to seek contingent self-worth. Gillison et al. (2009) probed participant P7[F] regarding preferred exercise environments:

P7[F]: when there are no boys around … out of school when there’s no one watching (p. 314).

The statement from participant P7[F] indicated introjected regulation to exercise for separable outcomes (i.e., for weight loss rather than enjoyment) was a distinctive concern. A male participant described the different motives for exercise as follows:
P3[M]: Um, I would usually play football because, I just like playing football, but I go to the gym regularly because I don’t like being overweight. So I wanna keep fit and build up some stamina. That’s usually why I would do it. I think lots of people just enjoy it, and enjoy it a lot, but I do like to do it to lose weight as well, after school and going to the gym and that, and to like bulk up a little bit, so it’s a bit of both of those really. But it’s generally people enjoy it, and they don’t mind the fact that they’re like going to become, to keep healthy. I don’t think keeping healthy is the main reason they start doing it. They like doing PE, but it’s [health] one of the reasons they might enjoy it (Gillison et al., 2009, p. 314).

According to Gillison et al. (2009), participant P3[M] demonstrates intrinsic motivation for playing football and identified regulation for exercise, indicating partial internalization as a personalized important value (i.e., fitness and health benefits). Participant P3[M] believes other people enjoy fitness training, but he does fitness training to “lose weight” and “bulk up a little bit” Gillison et al. (2009). Participant P3[M] is more self-determined compared to the earlier description of female participant P7[F] seeking exercise for weight loss and appearance, which is less self-determined at the introjected level to gain contingent self-worth from others.

The findings from Gillison et al. (2009), indicate both genders enjoy sport and exercise but are operationalized differently. “Unlike the boys, girls in the present sample rarely exercised informally with their existing friends, and sport and exercise were notably separate from their social lives” (Gillison et al., 2009, p. 315). One explanation may be the image of being feminine may be in conflict with sport and exercise. The same conflict does not appear to exist for boys, as sport is considered to be a masculine domain (Gillison et al., 2009).

The study by Gillison et al. (2009) combined SDT with interpretive phenomenology in a school-based study involving adolescent students. The results
discovered the psychologically meaningful experiences of the student participants related to self-regulation for sport and fitness activity. The students understood the health benefits of sport and exercise resulting in motivational forces being externally or internally controlled.

**A Summary of Issues and Challenges Facing Adolescent Online Learners**

Understanding the issues and challenges from the learner’s perspective is valuable in developing online learning programs for optimal outcomes. Several studies were reviewed seeking to improve outcomes for students among adolescent online learners (Barbour & Hill 2011; Blazer 2009; Borup et al., 2013; DiPietro et al., 2008; Lin et al., 2008; Liu et al., 2010; Picciano et al., 2012; Rice 2006; Ronsisvalle & Watkins, 2005; Roblyer et al., 2008; Savery 2005; Vanourek 2011; Watson et al., 2015; Wang & Hsu 2008; Wang & Newlin 2002; Zhang & Quintana 2012). The challenges identified in Table 7, and new challenges that may emerge from this phenomenological study serve as the impetus to understand and improve online learning experiences for fully online virtual students.

The purpose of this section is to examine the downside of online environments from the student’s perspective. The responses shared in this section are from actual adolescent students’ excerpts found on Table 7. Online students generally regarded issues as be undesirable or too challenging. However, the students’ responses to challenging conditions encountered as online learners were mixed. In some cases, students preferred traditional face-to-face learning to avoid the challenges faced in the online environment. In other cases, the challenge of online learning environments was
Table 7.

Summary of Issues and Challenges Facing Adolescent Online Learners

<table>
<thead>
<tr>
<th>Issues faced by online learners and supporting studies</th>
<th>Sample Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeschool misconceptions</td>
<td>“Yes, they like to call it homeschooling, which I don’t like. It’s not homeschooling, I have to tell them that. They’ll ask me where I went to high school and it’s sometime hard to say public charter online high school because I don’t want them to think that it is easy, or that I was homeschooled. They usually don’t understand. Sometimes it’s hard to explain” (Green, 2013, p. 111).</td>
</tr>
<tr>
<td>Time management</td>
<td>“I felt uncomfortable asking anything with my virtual teachers because in the past some of them did not seem willing to help…It seemed like I was being a bother to one teacher, so I started asking classmates rather than my teacher…I know it was not the best idea but it was easier for me” (Pleau, 2012, p. 59).</td>
</tr>
<tr>
<td>Requires more self-motivation</td>
<td>“we are self-motivated [about school] for the first time!... the onus is on us. We are required to work things out on our own. This make us learn better” (Tunison &amp; Sackney, 2004, p. 38).</td>
</tr>
<tr>
<td>Difficulty with collaboration</td>
<td>“…it made me wait a couple of weeks to get a partner…it kind of wasted my time…I could have been doing other lessons or other stuff while I was waiting to get a partner for the collaboration…I posted to the forum and waited and waited” (Pleau, 2012, p. 57).</td>
</tr>
</tbody>
</table>

preferred compared to traditional face-to-face learning. Students in the latter case preferred personal decision-making and appreciate autonomy experiences associated with
Many of the issues reported by students may be related to particular contexts. For example, an issue related to collaboration with others may include factors such as course design (Swan 2002; Zhang & Quintana, 2012), online teaching practices, (Ronsisvalle & Watkins, 2005; Tunison & Sackney, 2004; Watkins, 2005;) and motivational factors (Chen & Jang, 2010). Other issues may or may not be related to the student excerpts in Table 7. Some of these potential issues were found in the review of research literature at the post-secondary and secondary levels included factors such as dropout rates, (Roblyer, 2006), effectiveness of K-12 virtual schools (Leh & Jitendra, 2012), teacher professional development (DiPietro et al., 2008), socialization with virtual others (Swan, 2002), and access to technology (Roblyer et al., 2008).

The purpose of this study was to explore the personal meanings and motivational aspects of being a virtual school student in a particular virtual school. The issues reported on Table 7 were included for comparison with the results of this study as described and interpreted following prescribed phenomenological methodologies found in Chapter III.

Chapter Summary

Chapter II presented a contextual foundation for this phenomenological study about adolescent student experiences in a particular virtual school.

The development of distance education began in the U.S. with postal delivery of correspondence courses in the early 19th century and continues to evolve in the 21st century via the Internet. The appeal and resistance of each type of distance education
system was examined revealing technological change as an evolutionary process. Online learning in the U.S. was described along with the trending growth of supplemental online learning programs and virtual schools. The perceived benefits and quality concerns were shared from the review of literature on the current status of online learning and virtual schools. Viewpoints about online learning were described from online learners, teachers, parents, administrators, and policymakers.

Chapter II included a section on self-determination theory (SDT) for application in this study. SDT identifies basic human needs for autonomy, relatedness, and competence in a variety of social settings. Furthermore, SDT explores the locus of causality for human behavior and various levels of self-regulation. These components of SDT may illuminate motivational experiences related to learning in a specific context. Several studies were shared exploring the application of SDT to adolescent students, including applications for students enrolled in supplemental online programs and full-time virtual schools.

The contents of Chapter II served to identify the structures, objects, beliefs, and attitudes of adolescent virtual school students constituting their lived experiences. The research methods discussed in the next chapter aim to find the personal meanings of experiences related to learning in a nontraditional school setting. This research about the experiences of adolescent virtual school students was guided by the overarching research question, “How do virtual school experiences meet the needs of students?” The results presented some new findings and confirmed the results of similar reviewed studies.
CHAPTER III
RESEARCH METHODOLOGY

This chapter discusses a specific qualitative research methodology, conceptual underpinnings of phenomenology, and a prescriptive process for data collection and data analysis. Chapter III begins with the research questions and their epistemological orientations leading to a mixed-methods approach within qualitative research. The setting is described, and the participant selection process is discussed in detail. A pilot study preceded the actual research agenda. The pilot study was evaluated for yielding rich data necessary for effective orchestration of the research design and methodologies. Changes to the study design were shared in Chapter IV based on the researcher’s use of a reflexive journal and triangulation strategies. The reflexive journal and triangulation strategies are described in this chapter and intended to improve the trustworthiness and credibility of the study.

Research Questions

The research questions guide the researcher in the selection of the research method (Giorgi, 2009; Smith et al., 2012). In this research study, the overarching research question is, “How do virtual school experiences meet the needs of students?” A closer examination of the research questions reveals the epistemological position of the researcher (Smith et al., 2012). The research questions in this study are

1. What attracts (some) students to virtual schools?
2. Why do students continue attending or return to virtual schools?
3. What are some examples of experiences students have in virtual schools?
4. What are some examples of student satisfaction in a virtual school setting?

5. What are some examples of student dissatisfaction or frustration in a virtual school setting?

Research questions 1-3 seek an epistemological position focusing on description for understanding; whereas, research questions 4-5 take a different epistemological position focusing on interpretation and explanation. All of the research questions sought rich descriptions or episodes of experience to better understand the essence of being a virtual school student and the psychological importance of their school experiences. Since the details were individually explored, the study was idiographic, seeking personal meaning of attending a virtual school. The research questions explored lived through experiences as opposed to vicarious experiences. Research questions 1-3 sought common themes among the individuals’ virtual school experiences. Hence, the study was transformed from idiographic research to nomothetic results based on generalized patterns of the phenomenon (Giorgi, 2009). Research questions four and five revealed idiographic and nomothetic results. In other words, the satisfaction and dissatisfaction experiences of virtual school students followed convergent and divergent paths due to individualized contexts and differences in self-regulation.

A difference of opinion is worth noting between two prominent phenomenological researchers chosen to guide this study. Both researchers have many followers in the research community creating a debate between phenomenology as an interpretive or descriptive field of study. Smith et al. (2012) promotes a phenomenological method that is interpretive in nature, with clinical value for the
individuals participating in the phenomenological study. Several examples of interpretive phenomenological analysis from Smith et al. (2012) relate to idiographic experiences such as health and illness, sex and sexuality, psychological distress, and life transition and identity. On the other hand, Giorgi (2009) is concerned with description of the lived experiences identifying the phenomenon. According to Giorgi (2009), “The research then centers only on how a particular individual experiences a phenomenon. One reason is that the distinction between what belongs to the individual and what belongs to the phenomenon as such is difficult to make with only one subject” (p. 198). Giorgi (2009) recommends at least three subjects to draw variations from the raw data for the descriptive phenomenological method to be effective. According to Giorgi (2009), the individual differences of how experiences are lived through, are examined for common structures of experience, rather than an interpretation of individual experiences.

The distinction between descriptive phenomenology and interpretive phenomenology is debated in the review of literature (Giorgi, 2010; Smith, 2010). According to Pringle, Drummond, McLafferty, and Hendry (2011),

“The interpretive phenomenological approach from Smith et al. (2012) stresses hermeneutic elements, seeking to capture examples of convergence and divergence, rather than focusing solely on commonalities, which Giorgi’s approach prioritizes (Smith at al., 2009),” (as cited in Drummond & Hendry, 2011, p. 22).

Another difference is Giorgi (2009) advocates a rigid descriptive process. In contrast, Smith’s interpretive process is more flexible, being adaptable to individuals allowing more diversity of data collection (Pringle et al., 2011). As matter of choice between the interpretive and descriptive phenomenological methods, this study used mixed
phenomenological methods. An explanation of the mixed methods approach is described next.

In this research of adolescent virtual school student experiences, the viewpoints and differences between Giorgi (2009) and Smith et al. (2012) are respected and appreciated. The discovery of common phenomenal experiences, rather than interpreting individual experiences is referred to as descriptive phenomenology. The rigid steps of Giorgi’s (2009) descriptive phenomenology were followed for research questions 1-3. However, the application of a particular motivational theory was embedded in research questions 4-5. These latter research questions involve the experiences of satisfaction and dissatisfaction reported by the participants. The individualized experiences of satisfaction and dissatisfaction were examined using interpretive phenomenological analysis from Smith et al. (2012). The results from questions 4-5 revealed interpretive meanings of satisfactions and dissatisfactions as a virtual school student. The application of a particular motivational theory was applied to research questions 4-5 during the data analysis. However, the motivational theory of interest was put aside or ‘bracketed’ during the early stages as prescribed by the interpretive method. More details of each method are described in the data analysis section of Chapter III.

In this research, the motivational theory of interest is referred to as self-determination theory (SDT). Any number of theories may be applied to the data collection comprised of interview transcripts and the participants’ written activities. The potential use of different theories applied to the processes of data collection and data analysis may yield different interpretations. The preference for the application of SDT
was due to the researcher’s interest generated by the review of literature. More specifically, “How are virtual school students motivated to learn in the physical absence of the teachers and fellow students?” This question was embedded in the overarching research question, “How do virtual school experiences meet the needs of students?”

In addition to the distinction between two phenomenological methods, Giorgi (2009) recommends clarification of the term *case study*. Although the study is context-bound by the setting, the goals of case study research and phenomenology are not the same. In case study research, an attempt is made to delimit the study by defining the boundaries of the case (Merriam, 2009). The purpose of this research was not to describe a particular virtual school and its boundaries. Rather, the research sought to determine how individual students engaged in a similar school setting perceived their experiences in different and similar ways. The common structures of experience identify the phenomenon, not necessarily the school setting.

The research questions in this study served to uncover what it might be like to be a full-time virtual school student given rich and deep descriptions of context. The problem in this study is a lack of understanding. Little is known about why students are attracted to the virtual school, reasons for returning to the virtual school, their experiences as virtual student school students, and how the virtual school meets their needs. The mixed phenomenological methods selected to address this problem is descriptive phenomenology and interpretive phenomenology. The use of the phrase *virtual school* or *virtual school study setting* is a pseudonym name given for a single school setting located in the north, west-central portion of the United States.
The descriptive phenomenological approach was inductive, as the researcher examined all of the data seeking experiential moments, being implicit and explicit in the data. The participants’ experiences were examined for psychological expressions that may partially or precisely fulfill the schooling needs of the participants. From a descriptive phenomenological perspective, the study was hermeneutic and transcendental, being a combination of learning from interview transcripts/written texts and describing how the experience was given from the consciousness of each participant. For these reasons, research questions 1-3 are consistent with the application of the Girogi’s (2009) Descriptive Phenomenological Method in Psychology. The interpretation of responses from research questions 4-5 was more deductive since the researcher examined the interview transcripts/written texts through the lens of SDT theory. Therefore, research questions 4-5 were analyzed using Smith’s et al. (2012) Interpretive Phenomenological Analysis, which incorporates presuppositions such as SDT theory.

In closing, both phenomenological methods attempt to make sense of what is happening in the lives of people and the meaning they give to phenomena in question. Research focusing on lived experience and how experiencing something is transformed into consciousness is suited for phenomenology (Merriam, 2009). According to Van Manen (1990, p.11), “Phenomenology is a human science (rather than a natural science) since the subject matter of phenomenological research is always the structures of meaning of the lived human world (in contrast, natural objects do not have experiences which are consciously and meaningfully lived through by these objects).”
Research Setting

The setting is a K-12 virtual school located in a north, west-central portion of the United States. A public school district operates the virtual school. At the time of the study, the district included a traditional preschool, elementary school, middle school, high school, and virtual school. All of the schools within the district met the state’s accreditation requirements. The virtual school was in its sixth year of operation being introduced in the fall of 2012. No public virtual schools existed in the state prior to the arrival of the virtual school.

A site permission letter signed by the school district’s board president on April 9, 2015 accompanied the university’s human subject review application.

Description of the Virtual School Setting

A description from the 2015-2016 virtual school handbook described the setting as following sections. Note: the researcher served as an author of the virtual school handbook prior to retirement as school superintendent in June 2015. The name of the virtual school was replaced using the words virtual school or virtual school study setting.

According to the virtual school handbook, the virtual school is a full-time virtual school delivering 100% of the students’ educational program. The virtual school delivers instruction and learning content primarily over the Internet to computers used by the students and their parents. The virtual school allows students and their parents to work closely with highly qualified teachers from their home or other remote locations. The parent(s) or other responsible adult(s) serve as the on-site learning coach and have a custodial role during instructional time (i.e., making sure students are prepared to learn
and stay on-task during the school day). The virtual school was designed for parents and students that wish to be closely involved with their teacher on a one-to-one basis.

The instructional pace may be altered to meet the student’s instructional level, which allows students to work ahead in some subjects while taking more time if needed in other subjects. Each student completes six hours of instruction per school day (30 hours per week) for a minimum of 1,080 during the school year. Teachers and a learning coach (e.g., which usually is a parent) monitor the hourly instruction requirement with daily interaction, completion of assignments, and frequent use of assessments.

Virtual school students must complete the state’s standardized tests, which are proctored at specified sites around the state.

Hands-on activities, learning kits, and print materials augment the online curriculum. Textbooks and learning materials are sent to the home at the beginning of each school year.

A computer benchmark system alerts the teacher if the student is falling behind. Students are not allowed to continue in the virtual school placement if they fail to meet reasonable benchmarks due to chronic unexcused absences. Benchmarks include sufficient log-in time, regular communication with the teacher, response to email or phone messages within 24 hours or the next business day, attendance at live video conferencing sessions, meeting expected academic progress, being present for unannounced communications, proper implementation of learning coach practices, and teacher review of frequent online formative assessments.
Students with special needs receive accommodations similar to those provided in the traditional school setting.

Students in the virtual school study setting have social gathering opportunities beginning with regional orientation meetings to start the school year. Teachers arrange optional field trips in settings across the state. The field trips are planned on a monthly basis.

Assistance for resources such as an Internet subsidy is made available to qualifying families based on financial guidelines. The virtual school loans computers and printers to families based on needs.

School Profile

The school profile is from the 2016 virtual school study setting’s annual report produced by the state education agency (SEA). See Table 8 for the virtual school enrollment by gender, race and ethnicity, and other characteristics. During the 2015-2016 school year, 305 students in grades K-12 attended the virtual school study setting. The gender representation was 48% male and 53% female. Race and ethnicity was reported as 81% White, 8% African American, 7% Hispanic, and the remaining 4% being Asian, Pacific Islander, or Multiracial. Students with individualized education plans (IEP) represented 7% of all students. The students eligible for free and reduced lunch represented 31% of all students. According to the annual report, the virtual school study setting’s academic achievement in reading, math and science for the
Table 8.

*Virtual School Enrollment by Gender, Race and Ethnicity, and Other Characteristics*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Virtual School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>305</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>145</td>
</tr>
<tr>
<td>Female</td>
<td>160</td>
</tr>
<tr>
<td>Race and Ethnicity</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>249</td>
</tr>
<tr>
<td>African-American</td>
<td>25</td>
</tr>
<tr>
<td>Hispanic</td>
<td>21</td>
</tr>
<tr>
<td>Asian</td>
<td>*</td>
</tr>
<tr>
<td>Native American</td>
<td>*</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>*</td>
</tr>
<tr>
<td>Multiracial</td>
<td>*</td>
</tr>
<tr>
<td>Other Characteristics</td>
<td></td>
</tr>
<tr>
<td>English Language earner</td>
<td>*</td>
</tr>
<tr>
<td>504</td>
<td>*</td>
</tr>
<tr>
<td>Students with individualized education program (IEP)</td>
<td>22</td>
</tr>
<tr>
<td>Free and Reduced Lunch Eligible</td>
<td>95</td>
</tr>
</tbody>
</table>

Note: An asterisk indicates there are fewer than 10 students in the particular cell. No data will be publicly reported to protect the privacy pursuant to law. SEA 2016 Annual Report on Virtual Schools.

2014-2015 school year was

- reading 74.2% proficient on the state assessment, grades 4, 8, and 11,
- math 66.9% proficient on the state assessment, grades 4, 8 and 11, and
- science 75% proficient on the state assessment, grades 8, and 11.

The percent of students involved in extracurricular activities in the virtual school study setting was reported to be 11% of all students enrolled. According to the virtual school administrator, extracurricular activities consist of online clubs that interact with
other member virtual schools across the U.S. Students attending the virtual school study setting attended 16 different clubs during the 2014-2015 school year. The number of participants in each club appears in parentheses: French Club (3), Spanish Club (3), Lego Club (1), Caring for Animals Club (2), Virtual Field Trip Club (1), Art Club (2), Culinary Arts Club (2), Debate Club (2), Entrepreneur Club (2), Getting Crafty Club (1), Guitar Club (3), Photography Club (2), Scrapbooking Club (2), Social Justice Club (1), Writing Club (1), and American Sign Language Club (1). The total number of students in extracurricular clubs for 2014-2015 was 29 students.

The percent of students returning to the virtual school study setting from the previous school year (2014-2015) was reported to be 74.9%. See Table 9 for academic mobility patterns of students. The academic mobility was reported as the percent of newly enrolled students choosing such enrollment for a specific reason. Likewise, the percent of exiting students terminating such enrollment for specific reasons was reported.

Selection of the Participants

Phenomenological studies need at least three participants to have variations in the data (Giorgi, 2009). According to Giorgi (2009), there is a tradeoff in the number of participants and the amount of data secured. The necessity of the small sample size is due to the methodology, which requires several procedures to extract personally meaningful texts from lengthy interview transcripts. The emphasis is to describe the structure of phenomenon rather than the individualized experiences of the phenomenon (Giorgi, 2009). According to Smith et al. (2012), three to six participants
Table 9.

*Virtual School Academic Mobility for the 2014-2015 School Year*

<table>
<thead>
<tr>
<th>Specific Reason</th>
<th>Percentage of Percent Newly Enrolled</th>
<th>Percentage of Enrollment Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anyplace/Anytime Learning</td>
<td>29</td>
<td>0</td>
</tr>
<tr>
<td>Illness/Injury</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Bullying/Harassment</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>More/Less Course Selection</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Under Credit/Overage</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>More/Less Personalized Learning</td>
<td>5</td>
<td>36</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>48</td>
<td>64</td>
</tr>
</tbody>
</table>

may be sufficient to develop meaningful points of similarity and differences between participants in phenomenological research. Another factor in sample size is the number of interviews planned for the study. Typically, 4 to 10 interviews are manageable to reflect thoroughly on the data (Smith et al., 2012). In the latter recommendation, the number of interviews included multiple interviews of the same participants.

**Rationalizing the Sample Size**

Giorgi (2009) provided an example of a doctoral study producing 45 pages of single space text from interviewing three adults for about one hour each. The example study generated 247 meaning units (i.e., shifts in meaning) to be analyzed within the sum total of interview transcripts. Giorgi (2009) uses the example study to caution the
researcher from being overwhelmed by the data. All of the data is analyzed regardless if it is redundant or irrelevant to the phenomenological topic being studied (Giorgi, 2009).

Using Giorgi’s example study, the researcher estimated one page of single spaced text for every four to eight minutes of interview time. Highly talkative participants may need as little as four minutes to generate one single space page of text. The four-minute per page estimate was based on the sample doctoral study shared by Giorgi (2009). Although adolescents have attention spans rivaling adults (i.e., up to one hour), adolescents are expected to generate text at a slower pace (De Leeuw, Borgers & Smits, 2004). If the pace is half the speed of adults, only one-half page of single-spaced text may be expected over four minutes.

The researcher’s goal was to have at least 45 pages of text, which was comparable to the volume of text produced in the sample doctoral study from Giorgi (2009). Given these assumptions, the researcher interviewed six students, including one student for the pilot study. Two interviews were planned for each participant. Assuming all interviews utilize the maximum allotted time of 80 minutes, the researcher expected 10 to 20 pages per participant, a total of 50 to 100 pages of data for the base study. Excluding the pilot study, the five participants produced over nine hours of voice recordings and nearly 150 pages of text in the form of a script. However, up to two-thirds of the interview script was from the interviewer’s narrative during the interviews.

**Number of Participants, Age, and Attention Span**

The researcher interviewed six adolescent students, ranging from age 12 to 13, which included one student for the pilot study. According to De Leeuw et al. (2004),
“Adolescents can handle discussion periods up to one hour, after which a refreshment break is definitely needed” (p. 422). In this research, the length of interviews was limited to approximately 40 minutes each to help assure comfort during the interview and to minimize disruption of the participant’s daily schedule. Short breaks were offered during the interview when needed.

**Purposeful Sample Strategy**

A purposeful sample of students was selected from the virtual school study setting. Six students were recruited from the pool of seventh and eighth graders attending the virtual school study setting. One of the six students participated in the pilot study.

At age 11, the verbal, interactive, and cognitive capabilities of middle adolescent students are similar to the skills of adults (Vogl, 2015). Given the interview capabilities of students ages 11 and up, the preference for middle adolescents was to avoid the complexities of older students entering the virtual school. Based on the review of literature, older students (i.e., high school age) may enroll in virtual schools for reasons such as credit recovery, acceleration through the curriculum, and issues relating to high school completion. Another reason for avoiding older students is the increased likelihood of experiencing supplemental online programs compared to middle school age students. In this research study, preference is for students choosing the full-time virtual school for the sake of being a virtual school student rather than to recover credits, accelerate through the curriculum, graduate on-time, or take supplemental online courses unavailable in their current setting.
Sampling of participants was based on criteria relevant to the research problem. Merriam (2009) states, “a researcher is guided to a specific body of literature by the emerging problem, by the issues that arise during the data collection and analysis, and the need to interpret findings in light of previous research” (p. 83). Based on the review of literature and research problem, criteria were developed for purposeful sampling. See Figure 8 for the purposeful selection criteria chosen for this study. The criteria for the purposeful sampling was based on the random selection of students with at least one year of virtual school experience in the virtual school study setting. The students were gender balanced for the study, which included either a male or female selected for the pilot study. The preference for 7th and 8th graders was related to the need for grade

1. The students are members of the virtual school study setting as a convenience sample.

2. Students must have completed at least one full academic school year in the virtual school and be continuing enrollment. Students may have multiple years of enrollment in the virtual school.

3. Five participants are selected randomly from the pool of eligible 7th and 8th grade students. The random selection is balanced for gender in the base study with a student of either sex for the pilot study.

4. The pool is increased to include students from grades 6, 9, 10, 11, and 12 if necessary in that order. The purposeful criteria are applied in the selection process.

**Figure 8.** Purposeful Sampling Criteria.
completion rather than credit completion associated with high school students. The interview abilities of middle adolescents further supported the purposeful selection based on the review of literature. The use of external cues, writing activities, think-aloud strategies, and graphic organizers were supported by prior research studies, which increase the likelihood of achieving successful data collection with middle adolescents. The interview abilities of middle adolescents and use of external cues are discussed later in Chapter III.

The specific steps in recruiting student participants was approved by the university’s internal review board for researching human subjects. The steps of the recruitment process are outlined in the following section.

Steps in the Recruitment Process

The steps in the recruitment process are sequential. These steps include:

1. The virtual school administrator contacted 7th, and 8th grade students and their parents to authenticate the researcher via email. The email described the researcher as a founder of the virtual school, currently retired from the district operating the virtual school, and completing a research study about virtual school student experiences. The researcher’s purpose was described as completing research to obtain a doctoral degree from a university. Furthermore, the school administrator explained that students would be selected randomly, and interviews would be arranged asking parents to be present. A $30 stipend was offered to students for their time, and there was
no obligation to participate. Finally, the administrator explained the researcher would contact them directly if chosen by random drawing.

2. The researcher contacted six randomly drawn participants by email and telephone seeking student and parental consent to participate in the study. The researcher briefly described the purpose of the study, the necessity of required consent forms, and answered questions from the participant and parent. Two interviews were scheduled establishing the time and date of each interview and the address where the interviews were held, which was the participant’s home or other mutually agreed upon location. The process for voice recording was discussed and the parent’s requirement to be present at the interview location, including the option to witness the interview as a neutral bystander’s role (i.e., present, but not taking part in the interview). And finally, the researcher informed the student and parent of a brief background survey, and two written activities as components of the data collection to be completed by the student participants.

3. The required consent form was mailed to the participants for signatures from the parents and student participants. Items included in the mailing were: (a) general description of the research, (b) privacy rights and protections, (c) notice of discussion questions, (d) interview procedures, (e) gift card offer for the participants, (f) the interview scheduling process, (g) participant background questionnaire, (h) two pre-interview writing activities, (i) the researcher’s cover letter with contact information, and (j) a self-addressed,
stamped return envelope for return of the signed parent and student consent form.

4. The parent and student forms were returned to the researcher prior to the first interview.

5. Participants were offered a $30 gift card for their participation, which was delivered to the participants following the second interview.

6. Right to refusal of participation was granted prior to each interview.

Withdrawal from the study was granted following the final interview and prior to publication of the dissertation. The right of refusal information and withdrawal option was included in the written protections and privacy rights statement. The researcher randomly selected a replacement following the purposeful selection criteria. One replacement was needed for the pilot study due to the original participant withdrawing prior to the first interview. No other participant replacements were necessary.

Appreciation letters were sent to the virtual school administrator, and the participating students and their parents following the data collection.

Protecting Participants’ Privacy

Each participant’s privacy was protected by use of a pseudonym name, carefully securing documents (i.e., print, text, digital files), and the destruction of research files no longer in use. The parent(s) was required to be in nearby proximity during the interviews and were welcome to witness interviews as a neutral bystander. The presence of a parent provided comfort and security during the interviews. Interviewing in the participant’s
home was another measure of security and privacy. The option to interview at a mutually agreed upon location provided additional comfort to participant(s) and parent(s) that do not wish to be interviewed at their home. Interviews were voice recorded, adding a layer of protection in detecting appropriate behavior exhibited by the researcher and/or participant. The researcher received approval from the university’s institutional review board following the proposed procedures of this study involving human participants. The researcher’s contact information and the university’s human participants coordinator phone number was included in the parent and student consent form, which specifically stated the rights and privacy protections of the participants.

**Researching Adolescents**

In this research, adolescent children were selected ranging from 12 to 13 years of age. At this age students are typically attending grades seven and eight in middle school settings. The following sections address middle adolescents’ abilities regarding self-regulation, self-concept, verbal skills, and cognitive abilities. The interview skills of middle adolescents and effective strategies to improve the recall of past events are described. Special considerations of interviewing adolescents are discussed relating to legal matters, power imbalance during the interview, and properly directing the interview.

**Development of Self-Control and Self-Regulation**

According to Masten and Coatsworth (1998), “By adolescence, they are expected to follow rules of schools, home, and society without direct supervision (p. 207). Major expectations for this age group is to perform academically, get along with others, and develop friendships. In addition to these expectations, adolescent students attend to self-
differentiation by developing their own identities and autonomy (Masten & Coatsworth, 1998). Adolescent students learn to control their behaviors such as focusing on tasks and demonstrating persistence. The development of self-control is related to self-regulation and is fostered through strong relationships with caring adults (Masten & Coatsworth, 1998). Prior to this age, younger students have difficulty with retrospective questions. According to De Leeuw et al. (2004) children in early middle childhood may struggle to differentiate between imagined events and real events in the past. However, preadolescent children ages 7 to 10 are able to recall salient events representing meaningful experiences.

In this study, experiences are sought representing meaningful activities amongst everyday experiences, which involves the capabilities of adolescent students to use logic and organization of their memories. According to early research from Thornburg (1983), beginning at ages 9 to 10 children are able to use concrete imagery or abstraction. “Once logic and reasoning are complete, one’s mental skills might branch out, depending on schooling, experiences, interests, motivations, and consistent exposure to ideas, objects, or as in school, subject matter” (p. 81). According to De Leeuw et al. (2004) from age 16 and upward adolescents can be regarded as adults in cognitive development and information processing. However, adolescents have low resistance to the influences of peer groups.

Research on Interviewing Children and Adolescents

Vogl (2015) explored children’s verbal, interactive and cognitive implications for interview abilities. Research from Vogl (2015) was based on 112 semi-structured
interviews with children aged 5-11. Two modes of interviewing were examined. The study included 56 children whom were interviewed twice, once face-to-face, and once via telephone (Vogl, 2015). The research study from Vogl (2015) included an extensive review of literature containing over 50 references from the scientific literature regarding the verbal, interactive, and cognitive skills of children and adolescents. The results from Vogl (2015) are discussed next.

Verbal and interactive skills of children. According to Vogl (2015) “Both linguistic and pragmatic competences are essential for the ‘interviewability’ of children” (p. 324). Linguistic skills refer to prosodic, phonological, morphological, syntactic, and semantic rules of language. Vogl (2015) found interviewing children is more than having linguistic skills; the successful interviewing of children also requires conversational skills. Pragmatic or conversational competence comprises knowledge on what to tell or conceal about something, how to do it, and what to reasonably expect from the listener (Vogl, 2012, p. 324). Conversations skills include the understandings of language in a social context and the understanding of multiple perspectives. The child’s setting, conversation partners, and child’s perception of the interview situation play a role in what to expect from the conversation.

Vogl (2015) describes the relative strength and weaknesses of interviewing children at different ages. Children ages 5-7 are more likely to use idiosyncratic language, need assistance with vocabulary gaps, and benefit from negotiating meanings using words from the children’s field of experiences. The interviewer should avoid asking for explanations, as logical thinking and reasoning is underdeveloped at this
younger age. The use of metaphors or figure of speech should be avoided for children ages 5-8. “Younger children who are less well-versed in interaction and decentration are less biased” (Vogl, 2015, p. 329). The term decentrate in this usage is to move from the first person perspective to the second person perspective… from how ‘I’ perceive things to, what do ‘you’ want to know? The ability to decentrate is related to understanding different perspectives, rather than being more idiosyncratic, a tendency for children 5-7 years of age. By age 9, children have generally good verbal skills and begin to understand perspectives of the listener. Children at age 9 and younger have difficulty with expressions of quantity and frequency. At the age of 11, verbal and conversational skills of children begin to articulate adult-like conversational competences, use examples for illustrations, and may produce unsolicited and reproducible explanations (Vogl, 2012). However, expressions of time and frequencies are sporadic with little reliability. According to Vogl (2015), by age 11 the child interaction skills include mutual perspective taking and practice social desirability and impression management.

“The knowledge of different perspectives (and therefore of diverging judgments by different people) causes phenomena like social desirability or interviewer bias. Younger children who are less well-versed in interaction and decentration are less biased. Also, impression management becomes a part of behavior when children recognize that other actors have different perspectives. Consequently, the ability to decentrate can also negatively affect data quality. When children are well-versed in impression management, issues of privacy and confidentiality as well as the interview setting (e.g., at school or in the home) become important (Scott, 1997),” (as cited in Vogl, 2015, p. 329).

Beyond verbal and interactive skills are the cognitive skills of children. The importance of cognitive skills for interviewing children are discussed in the following section.
Cognitive skills of children. Children often say things that are surprising or amusing to adults, indicating children’s view of the world being different from that of adults (Vogl, 2015). At the age of 12 children are able to have adult-like conversations. At this age, children are able to use analogies and relational similarities, think logically, and practice reasoning skills suitable for interviewing (Vogl, 2015).

Piaget is recognized for a theory of cognitive development of children (Vogl, 2015). The theory serves as a framework for the cognitive development in four stages. The first stage is referred to as the sensorimotoric stage. At stage 1, children (ages <2 years) are in the preoperational stage, which is non-relational between objects. Stage 2 is the concrete operational stage. At stage 2 (ages 6-12) relational similarities are evaluated by trial and error. Stage 2 is analogical stage where comparisons are understood. Children are able to reject false alternatives based on relational similarities. Stage 3 (ages 12+) is the “formal operations stage where similarities are recognized and justified independently” (Vogl, 2015, p. 330). By the age of 11, children are able to use analogies and relational similarities. Logical thinking skills and reasoning abilities are adequate for interviews.

Strategies for Interviewing Children

Children’s skills are important for the applicability of interviews. The challenge to social scientists is knowing the verbal, interactive, and cognitive skills of children. These skills vary in children in the same way they vary in adults (Vogl, 2015). Some suggestions from Vogl (2015) applicable to children at age 11 include
• ask for explanations and illustrations,
• assume logical thinking and reasoning
• ask questions implying self-concept are applicable,
• use known expressions and straightforward language (avoid unambiguous expressions), and
• do not use complicated words or constructions (p. 336).

The interviewer should take into account the age, gender, socio-economic background, ethnicity, migration background among other sensitive factors in considering effective interview strategies (Vogl, 2015). The interviewer needs to recognize cues of misunderstanding, insecurity, and boredom. Children should know in advance of the interview if the interviewer lacks knowledge or may make mistakes. Another suggestion from Vogl (2015) is that younger children can be very literal and may sometimes answer a question they do not understand. Vogl (2015) found “children’s skills are important determinants for the applicability of interviews” (p. 333).

Use of External Cues during the Interview Process

The use of external cue helps add texture and structure to the experience. Textural descriptions of experience include ‘contents’ such as objects, ideas, and expectations; whereas, structural elements of experience explain ‘processes’ such as intentional acts, purposeful behaviors, and meanings (Moustakas, 1994). Examples of probing questions follow.

• “Who was present?” (textural probe)
• “What things were present?” (textural probe)
• “How did you handle the situation?” (structural probe)
• “Why was this experience important?” (structural probe)

External cues may become more direct in a search for contextual factors as descriptions become more concrete. Van Manen (1990) describes the phenomenological interview as the telling a personal life story. “As we ask what an experience is like, it may be helpful to be very concrete. Ask the person to think of a specific instance, situation, person, or event. Then explore the experience to the fullest” (Van Manen, 1990, p. 67).

According to research from Docherty and Sandellowski (1999), “The younger the age, and the more distant the event to be recalled, the more the children must rely on external and often very specific cues other than direct questions” (p. 182). An external cue may begin in a subtle manner and become more concrete in re-living a memorable experience. Hence, discussing what an individual is thinking may be used to support the interview process.

**Use of think-aloud.** The use of think-aloud strategies have been successful with children ages 9-14 (De Leeuw et al., 2004). At ages 12-14, students respond well to external cues such as think-aloud, a strategy where students are encouraged to read the interview question or passage aloud, enabling the researcher to detect language and comprehension problems. According to De Leeuw et al. (2004) probing questions during a think-aloud probe such as, *what does the word mean?* and, *what do you think it means?* work well with younger adolescents; however, the same think-aloud strategy may embarrass late adolescents ages 16-18. The think-aloud activity is administered as a
comprehension test of the interview question. The interviewer carefully offers probes in a neutral manner to improve comprehension of the question and its possible meanings to the participant. The purpose of the think-aloud is to verbalize what the participant is thinking. The goal for the interviewer is to become aware of the participant’s thought processes.

Research from Wang (2016) found think-aloud strategies improved reading comprehension among high school freshman taking English as a second language. Reading aloud and interacting with others in a social manner enhances cognitive awareness. According to Wang (2016) cognitive strategies function for effective and efficient retrieval, storage, and acquisition of information to construct meaning from texts. As a social device, think-aloud strategies can help mediate cultural meanings and the feelings of others (Wang, 2016).

In researching the experiences of adolescent virtual school students, the interviewer may ask the student to read the interview question aloud and share mental images of possible meanings. Understanding the participant’s comprehension of the interview question allows the interviewer to re-phrase the question if necessary to match the comprehension level of the participant. The discussion of the question gives the interviewer an opportunity to place boundaries around the question to avoid unintended meanings and irrelevant points of discussion during the interview. The interviewer views the process of think-aloud as a lesson in vocabulary and an opportunity to socialize with the participant acting as a co-researcher.
Use of interpretive inquiry. Another external cue is interpretive inquiry or brainstorming. The participant is offered paper and pencil to write ideas and consider the relationships with the interview question. The participant may be asked to elaborate on ideas, topics, and suggestions from the brainstorming activity. Brainstorming may be combined with think-aloud strategies and graphic organizers as external cues. The researcher does not interfere with the participant’s ideas and topic formation to avoid discouragement of free-thinking. The term free-thinking refers to the participant’s freedom to point to things (e.g., personal opinions, objects, goals, etc.). Following the brainstorming activity, the interviewer and participant consider which ideas or topics generated by the participant are more central to the interview question. The brainstorming activity uses two types of interpretation. According to Van Manen (1990) the first type of interpretation is the pointing to something; whereas, the second type of interpretation is pointing out the meaning of something. The pointing to something strategy is the explicit role of the participant, whereas pointing out meanings is carefully probed from the interviewer’s neutral attitude seeking to follow the participant’s thought processes, rather than guiding the participant following the interviewer’s thought processes.

Use of graphic organizers. Graphic organizers are helpful in recalling past events. As an external cue, the participant is given the opportunity to map out concepts visually. For example, the participant may be asked to draw a four-square concept map on paper. The researcher prompts the participant to write something about an important and memorable experience in each of the four squares. Consider the following questions as
potential probes placed in each of the four squares; *what things were present, who was present, how did others make their presence known, and what did you do to solve the problem?* Writing and drawing thoughts on paper allows the student time to think, reflect on the question, and re-live the experience.

**Special Considerations When Interviewing Youth**

Some special considerations are important when interviewing youth. “Ensuring the safety and well-being of children and other vulnerable groups must be vetted to assure parents of the potential risks, legal requirements, and responsibilities of the parents and researcher” (Gillham, 2008, p. 15). The following sections address special considerations when interviewing adolescent students. These sections include legal considerations, the power relationship between the interviewer and participant, and directing rather than guiding the interview.

**Legal considerations.** Identification and disclosure of potential risks, legal requirements, and responsibilities of parents and researcher were approved by the university’s institutional review board (IRB). The rights and privacy protections are necessary to build trust, offer comfort, reduce anxiety, and improve conversations with participants. Refer to Appendix A for a complete description of the Parents and Student Consent Form: Protections and Privacy Rights of Parents and Participants.

**Power relationship consideration.** Another special consideration for interviewing youth is the power relationship between the interviewer and participant. The ideal situation is for the participant to feel comfortable rather than intimidated by an authority figure. Three strategies were employed to help equalize the power relationship. First, the
student participants were given the power of consent. Children ages 10-13 may feel empowered with the right of consent according to Danby and Farrell (2004). In this research study, the student and parent must sign a written consent agreement to participate prior to the first interview. The student is reminded of their power of consent before each interview. A second strategy is to invite the parent to be present as a neutral observer during the interview. The parent may witness the interview adding a sense of safety and security for the adolescent participant. A third strategy to shift power from the interviewer to the participant is the location of the interview. Entering the adolescent’s home offers the interviewer an opportunity to be viewed as a guest. The home visit may add value to the interview with an opportunity to learn about the adolescent’s home environment (Vasquez, 2000). The participants in the study of adolescent virtual school experiences were offered a neutral sit such as the local library as an alternative to the home visit. Three of the five base study participants elected to meet in public libraries.

Directing rather than guiding the interview. Giorgi (2009) considers different ways the researcher might collect data, “It is possible to follow different strategies while remaining faithful to the logic of psychological research, whether quantitative or qualitative” (p. 66). One method is asking the participant to write a descriptive account of experience being sought. However, “Most persons do not write as extensively as they talk” (Giorgi, 2009, p. 122). In most cases, the phenomenological interview is voice recorded and later converted to text. Voice recording the interview enhances the interviewer’s time to be reflexive and more aware of his or her influence during the interview process. More specifically, the researcher should be aware of the difference
between *directing* the interview and *guiding* the interview. According to Giorgi (2009) directing the interview is permissible rather than guiding the participant from the interpretive perspective of the researcher. Giorgi (2009) states:

The former phrase, “directing the participant,” refers to the fact the researcher must have the participant speak to the researcher’s phenomenon of interest. After all, one cannot simply say, “Speak!” A researcher has a specific interest and wants to be sure that the data collected are relevant to that interest. So, to direct a participant to a specific zone of experience is not prejudicial because, in the discovery approach used by the phenomenological researchers (as opposed to hypothesis testing approach), the researcher does not care what the specific details or content are, only that they are genuinely revelatory of the experience being researched (p. 123).

In this study of adolescent virtual school student experiences, directing the interview applied to descriptive phenomenology and interpretive phenomenology in different ways. The descriptive phenomenological approach sets aside or *brackets* pre-understandings during the entire research agenda. In contrast, the interpretive phenomenological method eventually invites the researcher’s pre-understandings during data collection and data analysis. Using interpretive phenomenological analysis (Smith et al., 2012), the interview is directed to gather textural and structural descriptions while bracketing pre-understandings. Once the descriptions of experiences are completed, the researcher’s pre-understandings (i.e., such as theory) are invited to determine why the experiences happen as they were described. According to SDT theory, answering *why* questions often reveals the level of self-determination present at that moment (Deci & Ryan, 2000). SDT theory considers how people are self-regulated to meet basic needs for competence, autonomy, and relatedness. A subtle approach in directing the interview was achieved by asking participants *why* the given experience produced feelings of satisfaction or
dissatisfaction in the fulfillment of basic needs for competences, autonomy and relatedness.

In conclusion, the researcher remains faithful to directing the interview rather than guiding the interview within the boundaries of descriptive phenomenological method (Giorgi, 2009) or within the boundaries of interpretive phenomenological method (Smith et al., 2012). The following section describes the data collection instruments and data collection processes for the mixed phenomenological methods utilized in this study.

Data Collection

The data collection included a demographic questionnaire, two written pre-interview activities, and interview transcripts from two semi-structured interviews. The largest body of data was derived from the interviews, which were voice recorded and converted to text verbatim. The following sections discuss the procedures in collecting data.

Obtaining Participant Background Information

The participants received a questionnaire for self-reporting of background information. See Appendix B for the Parent Background Information Questionnaire. The questionnaire described the participant by gender, age, race/ethnicity, grade level, years enrolled in the virtual school, prior school setting, identification of the learning coach, prior virtual school or online course experience elsewhere, and self-reported academic grades currently in school. The purpose of the participants’ background information was to add cultural descriptions of the students participating on the study. The Participant Background Questionnaire was included in the packet of information
mailed to the parents and participants prior to the first interview. The participants returned the questionnaire during the first scheduled interview.

**Written Pre-Interview Activities**

Ellis, Amjad and Deng (2011) suggest using pre-interview activities to help participants recall past events. Pre-interview activities are especially helpful when interviewing children and adolescents. Such activities can take many forms such as, “drawings, diagrams, various lists, timelines or schedules that participants complete prior to the interview” (Ellis et al., 2011, para. 3). The objective of pre-interview activities is to produce identifications of patterns, key dynamics, or insights (Ellis et al., 2011). In researching virtual school experiences, the use of a daily journal was planned for recalling recent events and experiences in the virtual school.

**One-page written autobiography.** A one-page written autobiography activity asked the participants to describe *what life is like* as a virtual school student? The details of the autobiography are attached in Appendix C labeled Autobiography Assignment. The autobiography was read near the beginning of the first interview as a conversation starter. The researcher discussed the autobiography with the participant to probe for textural and structural descriptions. The reading of the autobiography and following discussion was voice recorded and converted to text verbatim. A written copy of the autobiography was collected by the researcher as a separate source of data. The written copy was analyzed as a triangulation strategy to determine if the participant’s written autobiography was congruent with the entire interview transcript following the voice recorded reading of the autobiography.
**Five-day satisfaction and frustration journal.** The daily journal focused on a dichotomy of most satisfying and most dissatisfying moments on a daily basis for one week. The participants read their passages aloud near the beginning of the second interview, which was voice recorded and converted to text verbatim. A copy of the daily journal was provided to the researcher as a triangulation strategy used later during data analysis. See Appendix D for the Five-day Satisfaction and Frustration Journal. The participant’s journal reading served as a conversation starter to probe deeper into moments of satisfaction and frustration related to basic psychological needs for competence, autonomy, and relatedness as structured by SDT theory. Therefore, the researcher’s probing questions were based on SDT theory’s constructs for self-determined behavior. These constructs include the locus of causality and five levels of self-regulation (i.e., external, introjected, identified, integrated, and intrinsic motivation). The satisfaction or dissatisfaction (e.g. frustration) for basic needs of competences, autonomy, and relatedness, may be revealed differently at the five levels of self-regulation (Deci & Ryan, 2000). Furthermore, moments of dissatisfaction or frustration may be associated with thwarting behaviors or false ascriptions, as an alternative to meeting basic needs for competence, autonomy, and relatedness. Following the participant’s presentation of the five-day satisfaction and dissatisfaction journal, the researcher’s reflexive use of prompts, probes, and external cues was implemented to extract structural and textural descriptions of satisfaction and dissatisfaction experienced by the participants.
Semi-Structured Interviews

The researcher’s goal was to interview each participant twice with at least one week between interviews. The entire interview process for the base study was estimated to take four to six weeks. The researcher’s actual time necessary for interviewing six students twice (i.e., 12 interviews) was six weeks. The base study interviews began two weeks after the pilot study was completed. The pilot study time included time necessary for the first trial of data analysis using two different phenomenological methods. The schedule of interviews was established following written consent to participate in the study signed by the parents and student participants.

Semi-structured interview procedures. Two interviews were planned for each participant spaced one week apart. The length of the interviews was limited to help maintain the attention of the student. According to De Leeuw et al. (2004), adolescent students may participate in discussion up to an hour. In this research, the cognitive demand on the student was the recall of past experiences that address the questions being asked. Hence, a shorter discussion period of 40 minutes with the opportunity for a two to three-minute break was offered midway through the interview. Each interview began with a brief introduction including a reminder of the participants rights and protections. Once the participant stated they were ready to begin, the entire session was voice recorded excluding the break. Substantive comments made during the breaks were noted in the researcher’s reflexive journal. The decision to discontinue voice recording during breaks was intended to provide a more relaxing atmosphere where participants might share their impressions of their interview performance. The second interview continued
in the same manner as the first interview. However, a short time was allotted for
clarification of statements and meanings from the first interview. Either party had the
opportunity for clarification of questions and responses from the prior interview.
Following the second interview, the researcher determined if the data collection seemed
sufficient. If more time was needed, the researcher and participant negotiated if a written
response to unanswered questions were preferred, or a third interview was arranged either
face-to-face or by means of video conferencing. No additional time was deemed
necessary following the second set of interviews. A description of the semi-structure
interview and procedures were delivered to the participants and parents prior to the first
interview. See Appendix E for Notice of Discussion Questions and Procedures for
Parents and Participants.

**Semi-structured interview questions.** Semi-structured interview are *conversation-like*
interactions between the interviewer and participant. Questions were open-ended
with the role of the interviewer to expand the responsiveness of the participants. The role
of the participants was to recount descriptive episodes of experience (Smith et al., 2012).
In-depth interviews often utilize different types of questions to generate descriptions of
experience. Questions generally ask for descriptions about events, situations, or instances
sometimes referred to as episodes. Smith et al. (2012) suggests several types of
questions. Some examples are *descriptive questions*, “please could you tell me what you
do in your job,” and *narrative questions*, “can you tell me more about how you came to
get the job?” Other types of question include *structural questions* such as, “so what are
the stages involved in the process of dispatching orders? An example of a *contrast*
question is, “what are the main differences between a good day and a bad day? And an example of a comparison question is, “how do you think your life would be if you worked somewhere else? The use of evaluative questions seeks emotional responses such as, “how do you feel after a bad day? An example of a circular question is, “what do you think your boss thinks about your job?” And finally, Smith et al. (2012), suggests prompt questions such as, “can you tell me a bit more about that,” and probing questions such as, “what do you mean by ‘unfair’?” (p. 60). Questions to avoid during interviews include over-empathetic questions, “I can imagine your job is quite boring – is that right,” or manipulative questions, “you’ve described your job as quite repetitive, is even worse than that?” Other questions to avoid include leading questions, “so I don’t suppose you’d say that your job is rewarding,” or closed questions, “so you’ve been working here for five years then?” (Smith et al., 2012, p. 60). Asking questions about lived experiences are broad allowing rich, vital and substantive descriptions of experience (Moustakas, 1994). Based on research from VanManen (1990), six suggestions guide the production of lived experience descriptions.

1. You need to describe the experience as you live(d) through it. Avoid casual explanations, generalizations or abstract interpretations.

2. Describe the experience from the inside, as it were; almost like a state of mind: the feelings, the mood, the emotion, etc.

3. Focus on a particular example or incident of the object of experience: describe the specific events, an adventure, a happening, a particular experience.

4. Try to focus on an example of the experience which stands out for the vividness, or as it was the first time.

5. Attend to how the body feels, how things smell(ed), how they sound(ed), etc.
6. Avoid trying to beautify your account with fancy phrases or flowery terminology (VanManen, 1990, p. 64).

**Application of self-determination theory during data collection.** The application of self-determination theory (SDT) is consistent with the researcher’s interest, which emerged during the review of related literature. Interpretive phenomenology is appropriate for the application of theory based on two conditions (1) the researcher does not guide the participant towards presuppositions of the theory, and (2) the researcher’s presuppositions are put aside (i.e., bracketed) while collecting descriptions of lived experience as given by the participants. Once the descriptions are given, the researcher may probe using theory-based questions relevant to the researcher’s interest (Smith et al., 2012). Conversely, the application of descriptive phenomenology prohibits the use of presuppositions, theories, and prior experience of the researcher during the entire data collection and data analysis processes.

**Semi-structured interview question protocol.** A semi-structured interview question protocol was aligned with each research question and method. See Table 10 for the protocol. Each semi-structured question seeks descriptions of lived through experience and may be followed-up with semi-structured questions to seek more precise descriptions of experience. Follow-up questions may serve several dynamics of conversation. The following sample questions were adapted from Smith et al. (2012).

- Description – what is being described?
- Narration – how the instance or event was experienced?
- Structural – how the experience is processed?
- Contrast – are the experiences the same or different at times?
Table 10.

**Semi-Structured Interview Questions by Research Question and Method**

<table>
<thead>
<tr>
<th>Research Questions (RQ) and Applicable Methodology</th>
<th>Interview Questions and Potential Follow-up Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ #1 What attracts (some) students to virtual schools? Descriptive Phenomenological Method (Giorgi (2009))</td>
<td>“Would you please read your one-page autobiography to begin the interview?” “I would like to use your autobiography as a conversation starter.” Begin conversation. “Please share some reasons why you first enrolled in the virtual school?” Potential probes: narrative (lead question – what was the instance or event), descriptive (what is being described), comparison (past to present), and evaluative (relating to continued enrollment).</td>
</tr>
<tr>
<td>RQ #2 Why do students continue attending or return to virtual schools? Descriptive Phenomenological Method (Giorgi (2009))</td>
<td>“Why do you continue to attend the virtual school?” “Was there ever a moment where you thought about leaving the virtual school … why or why not?” Potential probes: descriptive (lead question – what is being described), structural (how the experience processed), and evaluative (how the experience made you feel).</td>
</tr>
<tr>
<td>RQ #3 What are some examples of experiences students have in virtual schools? Descriptive Phenomenological Method (Giorgi (2009))</td>
<td>“What was an experience you had in the virtual school that was most memorable for you?” “What happened and who was involved?” “Why was this event so memorable?” Potential probes: narrative (what was the instance or event), evaluative (lead question – how the experience made you feel), structural (how was the experience processed), and circular (seek multiple perspectives).</td>
</tr>
<tr>
<td>RQ #4 What are some examples of student satisfaction in a virtual school setting? Interpretive Phenomenological Analysis (Smith et al., (2012))</td>
<td>“Would you please read-aloud your satisfaction comments from your five-day journal?” “Reflecting on your daily journal, what happened in the past week that was most frustrating for you?” “Why so?” Potential probes: evaluative (lead question), (lead question – how did the experience make you feel), narrative (what was the instance or event), structural (how the experience processed), and circular (seek multiple perspectives).</td>
</tr>
<tr>
<td>RQ #5 What are some examples of student dissatisfaction or frustration in a virtual school setting? Interpretive Phenomenological Analysis (Smith et al., (2012))</td>
<td>“Would you please read-aloud your dissatisfaction or frustration comments in your daily journal?” “Reflecting on your daily journal, what happened in the past week that was most frustrating for you?” “Why so?” Potential probes: evaluative (lead question), (lead question – how did the experience make you feel), narrative (what was the instance or event), structural (how the experience processed), and circular (seek multiple perspectives).</td>
</tr>
</tbody>
</table>

Note: Prompt and probing question apply to all semi-structured questions; prompts (can you tell me more), and probes (what did you mean by ______?).
- Comparison – what would your experiences be like elsewhere?
- Evaluative – how did the experience make you feel?
- Circular – how do you think others view your actions?
- Prompt – can you tell me more? Or, what happened next?
- Probing – What did you mean when you said ______? (p. 60).

Merriam (2009) characterized semi-structured interviews as a mix of interview questions, some more structured and others less structured. All of the questions are flexible and usually target specific data from all of the respondents. In addition, Merriam (2009) describes semi-structured interviews being guided by a list of questions or issues to be explored, but not in any particular order. In addition to the potential follow-up questions from Smith et al. (2012), the participants utilized external cues deemed appropriate by the interviewer. The inventory of external cues included an autobiography assignment, five-day satisfaction - dissatisfaction journal, think aloud strategy, interpretive inquiry strategy, and the use of graphic organizers.

**Summary of Steps Used for Data Collection**

The following steps summarize the data collection procedure. The steps are in sequential order and may be adjusted for unanticipated events.

1. Complete random selection of participating per the purposeful selection criteria.
2. Contact parents and student participants to secure tentative approval and begin planning the schedule for two interviews including dates, time, and location.
3. Secure written approval from parents and students to participate in the study. Exchange documents per Steps in the Recruitment Process, item 3.

4. Finalize the interview schedules and locations for all participants. Send two reminders of interviews and assignments due to each participant. Assignments include the Participant Background Questionnaires, and two pre-interview activities. Send two reminder notices of the upcoming interview five days in advance and one day before the interview.

5. Administer the pilot study in the same manner as the base study. This stage of research includes an evaluative component with the participant and participant’s parent. Complete the researcher’s self-evaluation. Allow up to two weeks for the pilot study.

6. Make adjustments to the data collection procedures as deemed necessary and appropriate from the pilot study. Document the adjustments (if any) to the data collection and data analysis in the results of the study.

7. Conduct all interviews in a four to six-week time span following completion of the pilot study. Collect the Participant Background Questionnaire and the pre-interview written activities (when due) at the end of each interview.

8. Follow-up with thank you letters to parents and five students participating in the study. Send an appreciation letter to the virtual school administrator for assisting with the email authentication notice of the study and organizing the eligible pool of participants including contact information of the parents.
9. Organize and secure the data, determine if any follow-up is needed with the participants.


Data Analysis

The data analysis in this research was organized into several sections beginning with philosophical roots of modern phenomenology and concluding with the specific steps of two phenomenological methods. The terminology used in the analytical processes were described using Giorgi’s (2009) Descriptive Phenomenological Method in Psychology, and Smith’s et al. (2012) Interpretive Phenomenological Analysis. Each phenomenological method was described in detail. The final section discussed how the results were written including the use of tables and figures.

The Descriptive Phenomenological Method in Psychology

The descriptive phenomenological method from Giorgi (2009) was selected for its methodology in describing lived experiences in a particular virtual school. According to Giorgi (2009) the descriptive phenomenological method of data analysis modifies a philosophical phenomenological scientific approach from philosopher Edmond Husserl. The modification is the transformation of personal meanings into psychological descriptions of experience. “Basically, the focus of psychology is on how individual human subjects present the world to themselves and how they act on the basis of that presentation” (Giorgi 2009, p. 135).
Before reading a detailed account of the steps in the method, a description of the scientific phenomenological reduction is important in understanding the attitude and processes involved in analyzing the data.

Comparing philosophical phenomenological reduction and scientific phenomenological reduction. Phenomenological reduction is clarifying meaning of experience from the consciousness of the person having the experience (Giorgi, 2009). The scientific phenomenological reduction is a partial reduction, “while the objects presented to the consciousness are reduced, the acts are not, so they refer to a worldly subjectivity that is influenced by society, culture, others and the world at large” (Giorgi, 2009, p. 135). The psychological meanings are revealed in the intentional activities of the subjective individual. According to Giorgi (2009), the description of human acts may transcend the individual to a conceptual level. In other words, the acts may go beyond the limits of abstraction and represent a belief thought to be universal or righteous. These transcendental phenomena might be spiritual, cultural, political, social or steeped in critical or post-structural epistemologies (Giorgi (2009). Hence, the scientific phenomenological reduction seeks to describe the acts regardless if they are observable, imagined, concrete, abstract, or conceptual. The psychological meaning of the acts present in the consciousness of the participant are described precisely as given (Giorgi, 2009). If the acts were reduced to a universal meaning, the philosophical reduction results in philosophical analysis. Reducing acts to a universally accepted level would be ignoring the subjective and contextually based world of human behavior.
Scientific phenomenological reduction excludes reduction of human acts. The acts are transformed into psychological sensitive descriptions of meaning resulting in a scientific phenomenological analysis. The researcher intuits the transformation of acts to psychological statements (Giorgi, 2009). The intuition is subject to the researcher’s background and an examination the act-object relationship presence as given. The reduction is limited to the object in the act-object relationship (Giorgi, 2009). The objects described by the participants are reduced to determine the essence of the experience. According to Giorgi (2009), the essence is the invariant structure of the phenomena essential for its identification. Without the invariant structure, the experience collapses.

A phenomenological philosopher, Maurice Merleau-Ponty, describes the objects in the process of constituting personal meaning. “The objects have a perceptual quality that presents itself in the sensory experiences, assumptions, memories, associations and anticipations makes experience, like the world itself - inexhaustible rich” (Merleau-Ponty, 1945, Foreword by Taylor Carman, para. 6). Rich descriptions of experience may yield essences of the experience identifying the phenomenon. Before the scientific phenomenological reduction occurs, the essence of the experience must be identified. The essence is the invariant structure of an object that is present for the experience to occur.

Giorgi (2009) provides an analogy about drinking a cup of coffee as an experience. The intentional act is directed towards objects in the coffee drinking experience. One object present to consciousness is a coffee cup. If the participant
describes the cup as being yellow made of ceramic glass and having a handle, the
structure of the experience begins to unfold. Before proceeding with the
phenomenological reduction, one must practice the Greek term epoch’e. The meaning of
epoch’e is to suspend all judgments about non-evident matters. The epoch’e of the
natural attitude and epoch’e of natural sciences set the stage for philosophical
phenomenological reduction of the object (Giorgi, 2009). The researcher examines the
written texts and transcends the experience by looking for the essence of the object. In
examining the coffee drinking illustration from Giorgi, the researcher uses imaginative
variation to determine the aboutness of the object, in this case a yellow ceramic cup with
a handle. The researcher considers if the color yellow is an essential structure describing
the experience. Although the cup is yellow, the researcher can imagine different colors
of cups would not change the experience. Hence, color is not an invariant structure
defining the essence of cupness. Next, the researcher considers the cup having a handle.
Again, the act of drinking coffee may be experienced using a container without a handle.
Perhaps the material used to make the cup is a structure of the experience. Again, using
imaginative variation, the researcher considers different materials in the composition of a
cup. The researcher imagines ceramic glass as the baseline material. Other materials are
imagined for cupness such as wood, metal, paper, fabric, netting, clay, until an invariant
structure emerges. The researcher ‘intuits’ the material to be a non-porous material. The
cup handle is another structure tested by imaginative variation. Does the coffee drinking
experience require a cup with a handle? The researcher can imagine the coffee drinking
experience without a cup handle. The handle on a cup handle may be invariant structure
of the object if the participant prefers very hot coffee. A hot cup without a handle may be held in one hand with an insulating sleeve. In this case, the researcher is using background knowledge that he or she is familiar. However, the use of an insulating sleeve on a cup with no handle is a non-given and bracketed by the researcher without the participants supporting data. The researcher notes the need for more contextual information about the temperature of the coffee. In this illustration, the researcher is only reducing the object (e.g., coffee cup) for which the act was intended. The act is not reduced (i.e., drinking coffee), it is described as given by the data collection. In this example, the essence of cupness may be identified in words other than the words found in the original texts. The example is evidence of phenomenological reduction being transcendental, revealing two essential properties of coffee drinking that did not appear in the raw data: (1) the cup’s material must be non-porous, and (2) the cup needs a handle to hold potentially hot drinks. The first property dealing with the cup’s materials is a textural description. The second property of having a handle for holding a hot drink unfolds into a structural description of how coffee drinking is experienced. A follow-up probe might be, “Do you like to drink your coffee hot?” Once the phenomenological reduction of the object is completed, the essence of cupness is identified as a constituent structure for the coffee drinking experience. Imaginative variation involves intuitiveness; the researcher can intuit objects other than the objects described by the participant.

As mentioned earlier, the researcher does not reduce the acts. Reducing the act would be a departure of the scientific phenomenological method in psychology. If the researcher used phenomenological reduction to reduce the object and the act, the result
would be a strictly philosophical, losing the personal meaning and rich context of the act. In Giorgi’s illustration, the personal meanings of the coffee drinking experience may be lost (e.g., enjoying the coffee aroma, a particular flavor satisfying a preferred taste, using my favorite cup, the appeal for caffeine effects on the body early in the morning, or other \textit{givens} from the participant). Philosophical reduction may reduce the human acts to an organismic level, the basic need for hydration in this illustration. Reducing the act ignores the rich context and psychological meaning given by the participant (Giorgi, 2009).

According to Giorgi (2009), scientific phenomenological reduction modifies the philosophical phenomenological approach using a scientific method generating psychologically sensitive statements. The psychological statements reveal lived experience, recognizable to practitioners in the field of study. The lived experiences of participants contain deep rich meaning, are highly contextual and filled with personal meaning. The results are often described in a few paragraphs following several pages of texts and their transformations (scientific phenomenological reduction). The researcher uses general psychological terms, which are pre-theoretical, explicit, and traceable to intentional acts of participants directed toward essence-bearing objects (Giorgi, 2009). The objects may be real things (i.e., concrete) or abstract ideas, opinions, or concepts. A coherent description of experience is written based on the lived through experiences, bearing intersubjective personal significance.

Giorgi and Giorgi (2003) advise against two errors in articulating the psychological descriptions, “Personal meanings are pursued not for their own sake but for
the value they have for clarifying the context in which the psychological phenomenon manifest themselves, and therefore, for the role in specifying psychological meanings” (p. 253). Pursuing the personal meanings for their own sake would be the work of trained clinicians in respect to personal lives. The personal meanings are explored only to the extent that contextualized personal meanings reveal psychologically significant descriptions about the phenomena. Secondly, Giorgi and Giorgi (2003) suggest avoiding psychological jargon as it exists in the literature, “There are theory-laden terms established in psychology with certain strengths and certain limitations” (p. 253).

In review, the researcher assumes the phenomenological attitude, which is exemplified by Merleau-Ponty (1945), “Phenomenology is thus a descriptive, not an explanatory or deductive enterprise, for it aims to reveal experience as such, rather than frame hypotheses or speculate beyond its bounds” (Foreword, Taylor Carman, para. 3). Within the phenomenological attitude, the researcher performs a step-by-step partial reduction of the raw data, where objects are reduced using philosophical phenomenology and the acts are not reduced. The researcher uses imaginative variation as a tool of intuition related to the field of study and research problem (Giorgi, 2009). The objects may be concrete, abstract, subjective, and hidden (i.e., implicit) in the natural language of the participant. The essences of personal meaning are identified as invariant structures necessary for the phenomenon to be identified. Personal meanings of experience are transformed into psychologically sensitive statements. A general description of the phenomenon is written based on the common experiences of the participants. The results
are oriented by the research problem and the researcher’s background experiences (Giorgi, 2009).

In this research, the phenomenological descriptive method in psychology is implemented to explore the experiences of virtual school students attending a particular school. The research problem is a lack of understanding about virtual school students’ lived experiences. Little is known about why students are attracted to the virtual school, reasons for returning to the virtual school, their experiences in the virtual school, and how the virtual school meets their needs.

The steps of the descriptive phenomenological method in psychology. The voice recorded interviews are converted to text verbatim forming the raw data to be analyzed. The process of data analysis follows Giorgi’s (2009) Descriptive Phenomenological Method in Psychology. The three steps from Giorgi (2009) are described below.

The concrete steps of the method.

1. Read the transcripts for a sense of the whole.

2. Determine the meaning units.

3. Transformation of the participant’s natural attitude expressions into phenomenological psychologically sensitive expressions (Giorgi, 2009, p. 128).

The steps of the method were expanded to prescribe the process of description rather than interpretation of the data. The role of the phenomenological attitude is outlined within the scientific phenomenological reduction. The process of determining meaning units, identifying intentional acts of the experiencer and determining essences of common experiences are described. The expanded steps describe how meaning units bearing
psychological significance are eventually transformed into psychologically sensitive statements. Independent or variant constituents of experience were identified along with common or invariant constituents of experience. The results were organized into two tables and figures summarizing the results. The tables represent variant and invariant constituents of experiences linked to excerpts from the five participants. A single table and a single figure was developed representing the transformation of common experiences into psychological sensitive statements for each study participant. Finally, a coherent written description of virtual school experience was written for each participant including psychologically sensitive personal meanings. The expanded steps of the method from Giorgi (2009) are presented below.

The expanded steps of the method. The expanded data analysis procedures are aligned with the steps prescribed by Giorgi (2009, p. 120).

1. Read the text for a sense of the whole description.

1.1 Maintain the attitude of scientific phenomenological reduction throughout each step, begin by reading the entire text for a holistic sense of the entire situation. Giorgi (2009) describes “the scientific phenomenological reduction as a mixed reduction, wherein the objects are presented to the subject are taken to be phenomena, that is presences, but the consciousness to which the presences are given is taken to be a worldly, individuated, personal one” (p. 182).
1.2 Become aware of objects presented in the participant’s *lifeworld*. The lifeworld is the common everyday world into which we are born and live (Giorgi, 2009). Look for intentions contained in the description.

1.3 The descriptions given are from the participant’s natural attitude using natural language. Hence, the descriptions are perceptions of self, and how the participant chooses to present oneself to others.

1.4 Refrain from speculation, incomplete information, and *non-givens*. Interpretation of the participant’s descriptions is avoided.

1.5 Read the entire text again for a holistic perspective of the information strictly as given.

2. **Determine the meaning units.**

2.1 Search the text for psychological sensitive statements of the phenomenon being investigated. Psychologically sensitive statements are *presences* in the participant’s lifeworld. These presences are discovered by reading the text and separated by their change in meanings. The presences of meaning can be contingent on other presences with connections found anywhere in the text. Giorgi (2009) explicitly states, “The method demands that this step to be something *lived* rather than *intellectualized*” (p. 182).

2.2 Different researchers can easily select different places in the text where transitions of meaning occur. There is a level of arbitrary judgment in selecting meaning units. However, the meaning units do not carry any
theoretical weight at this point of analysis. The perceived meaning units help
the researcher manage the large volume of text for further analysis.

2.3 Identify the meaning units using a slash (/) indicating a separation from one
meaning to another meaning perceived to be different in nature. Change the
descriptions from first person to third person as a constant reminder of the
phenomenological reduction. The third person description reminds the
researcher of their outsider perspective. The lived experience of the
participant is the researcher’s focus. At the same time, the researcher
epoche’s his or her natural attitude and natural science tendencies (e.g.,
presuppositions, theories, explanatory frameworks or influences from one’s
own experiences). Number the meaning units (MU#) from the beginning to
the end of the text. See Appendix F for the researcher’s Phenomenological
Reduction Worksheet to process Steps 2 and Step 3.

2.4 Place the meaning units in the first column of a three-column template.

   Column 1 = numbered meaning units stated in third person (step two).

   Column 2 = phenomenological reduction (steps 3.1 & 3.2)

   Column 3 = psychological structure of experience (steps 3.3 & 3.4)

2.5 The template is a continuous script for each participant treated as a separate
case. The process is repeated for each participant beginning with participant
one and ending with participant five.
3. **Transformation of the participant’s natural attitude expressions into phenomenological psychologically sensitive expressions.**

3.1 Interrogate each meaning unit in the first column to discover the phenomenological psychological reduction, which is entered in the second column. “The phenomenological reduction begins with identification of conscious acts, which establish a meaning that seeks to be fulfilled, that is directed to an object that will completely satisfy its specific but empty meaning. There can be many objects that might come close to satisfying the meaning, but unless the object satisfies the meaning precisely, consciousness will continue to seek the precise solution. The schema is signifying acts > precise fulfilling act > act of identification” (Giorgi, 2009, p. 133). At this step, implicit meanings are made explicit.

3.2 Use free imaginative variation to seek the invariant structures necessary for the lived experience being examined. These invariant structures constitute the psychologically sensitive experience. “The transformation is contextual and symbolizes how the human subjects present the world to themselves and how they act on the basis of the presentation” (Giorgi, 2009, p. 135). Using a separate worksheet, re-write the meaning unit until the central meaning of the structures are described precisely. This step is testing the possible different meanings that may fulfill the participant’s psychological needs. The central meaning is the invariant quality of the structure necessary for the personally meaningful experience. The fulfillment of the meaningful experience is not
possible if the invariant structure is removed. Place the transformation of meaning into the second column, focusing on act-object relationships that fulfill the participant’s intentions. “The transformation does not add or subtract from the invariant intentional object arrived at, but describes it precisely as it presents itself. These transformed meaning units are the basis for the writing of the general structure of the experience” (Giorgi, 2009, p. 137). The researcher considers “horizontal aspects of the given that may be referred but not actually present” (Giorgi, 2009, p. 89). Place the MU# next to each invariant structure (i.e., constituent experience).

3.3 Use the third column to write psychologically sensitive statements supporting central themes emerging from column two. “The psychological reduction represents the lived experience of psychological processes relating to life functions, processes, and interests. In this step of the method, descriptions of activities are called for and the psychological aspect would be to tease out the subjective meanings lived by the persons on the basis of the rich, everyday descriptions provided by the participants” (Giorgi, 2009, p. 109). The eidetic (i.e., vivid mental image) form of the expression is formulated for psychological purposes. According to Giorgi (2009), “the eidetic reduction is a process whereby a particular object is reduced to its essence” (p. 90). The phenomenologist uses eidetic intuition to see the essences (i.e., invariant structures of experience) resulting in generalized findings. Giorgi (2009)
cautions to “avoid such a high level of abstraction which transcends psychological interests” (p.196).

3.4 “Finally, each meaning unit, originally expressed in the participant’s own words, is transformed by the researcher by means of a careful descriptive process into psychologically pertinent expressions but without using the jargon of mainstream psychology” (Giorgi, 2009, p. 137). These common psychological terms are the meaningful structures (constituents) of the experience for each participant expressed in general psychological terms.

3.5 Giorgi (2009) suggests creating flowchart or table to organize or display the relationships between exemplary meaning units to the transformations of psychological meanings by each participant. The graphic representation may be used as a tool to identify nondependent constituents (i.e., non-shared variant experiences) and common constituents (i.e., shared invariant experiences) between participants. The shared psychological meanings of experience describe attributes belonging to the phenomenon, while the nondependent psychological meanings belong to each participant.

3.6 Organize the common to all constituents of psychologically sensitive meanings into a table format. The table lists the common constituents and the empirical evidence (i.e., excerpts of meaning units) for each participant. These findings are the constituents or themes of the phenomenon of study.

Writing the results using coherent psychological descriptions of experience. The purpose of this final analysis is to bring unity of the psychological structures of
experience into summary form. Writing the general structures of experience is the final task in the descriptive phenomenological method. According to Giorgi (2009), “The psychological structure is not the definition of the phenomenon. It is meant to depict how certain phenomena get named are lived, which includes experiential and conscious moments seen from a psychological perspective” (p. 166). The findings are empirically based, even though the descriptions are somewhat transcended due to imaginative variation (Giorgi, 2009).

The written description is based on a partial analysis pertinent to the research questions rather than an overview of the whole description. The jargon related to the transformation is not included in this final outcome of the analysis. Rather, a holistic account of the pertinent data is presented using the language in the field of discipline (Giorgi, 2009). In this research study, the field of discipline is educational psychology. The pertinent structures of experience were guided by the overarching research question, “How do virtual school experiences meet the needs of students?” The fulfillments of answering each research question were discussed in Chapter V, including the strengths and weaknesses of the study.

Interpretive Phenomenological Analysis

Interpretive Phenomenological Analysis (IPA) from Smith et al. (2012) is the second method of analysis in this research study. The application of IPA is directed to research questions 4-5 below:

Research Question 4: What are some examples of student satisfaction in a virtual school setting?
Research Question 5: What are some examples of student dissatisfaction or frustration in a virtual school setting?

These research questions seek interpretation of behaviors unique to each participant. The research interest is to determine how the virtual school meets basic needs for competence, autonomy, and relatedness according to SDT theory. Unlike the Descriptive Phenomenological Method (Giorgi (2009), IPA invites the pre-understandings of the researcher resulting in explanation of the participants behavior. These pre-understandings represent the researcher’s professional knowledge, prior experiences, explicative frameworks, and theories (Smith et al., 2012). The researcher initially brackets his or her pre-understandings until textural and structural descriptions are well developed in the data collection process. Once the descriptions are documented, the researcher uses pre-understandings to identify structural descriptions focusing on how the experience is lived through and why the experience happens. In this research study, the probing questions become more theoretically based during the description of structural experience. The application of SDT theory serves the researcher’s interest in explaining the satisfaction or dissatisfaction in meeting the needs for competence, autonomy, and relatedness. The aim is to determine the self-determined behaviors of participants and the locus of causality motivating the participant’s behavior. In other words, the researcher seeks to identify if the motivation for attending to schoolwork in the virtual school is internally or externally motivated.
A detailed description of IPA is based on the similarities and differences compared to Giorgi’s (2009) Descriptive Phenomenological Method in Psychology. The similarities are summarized next.

- Descriptions are based on lived through experiences.
- Data is generally from individual interviews converted to text.
- The interview texts are read and re-read for a sense of the whole description.
- The parts of the whole text are examined for conceptual linkage.
- A small number of participants are recommended to seek detailed accounts of behavioral experience, rather than being overwhelmed with less detailed accounts of experience from a larger sample.
- Results are displayed in tables and figures.
- Results improve empathetic understanding rather than generalization outside of the study.

The differences between Giorgi’s (2009) Descriptive Phenomenological Method in Psychology and IPA are well documented in the review of literature (Pringle et al., 2011; Finlay, 2009). See Table 11, Major Differences Between Giorgi (2009) and Smith et al. (2012) Phenomenological Methods. According to Finlay (2009), the Descriptive Phenomenological Method from Giorgi, “encompasses interlocking steps: (1) phenomenological reduction, (2) description, and (3) essences” (p. 7). On the other hand, Smith’s IPA is concerned with, “hermeneutic traditions recognizing the central role played by the researcher, and does not emphasize bracketing (Smith 2004),” (as cited in Finlay, 2009, p. 8).
Steps of interpretive phenomenological analysis. The steps used in IPA are suggested to guide novice researchers (Smith et al., 2012). Once the underlying

Table 11.

Major Differences Between Giorgi (2009) and Smith et al. (2012) Phenomenological Methods

<table>
<thead>
<tr>
<th>Descriptive Phenomenological Method (Giorgi, 2009)</th>
<th>Interpretive Phenomenological Analysis (Smith et al., 2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nomothetic result.</td>
<td>1. Idiographic result.</td>
</tr>
<tr>
<td>2. Distinction belongs to the phenomenon.</td>
<td>2. Distinction belongs to the individual.</td>
</tr>
<tr>
<td>3. Meaning units are analyzed using imaginative variation followed by a search for the essences of objects.</td>
<td>3. Interpretive noting along-side of the script, which focus on description, linguistics and conceptual commenting becoming more interpretive from the researcher’s professional knowledge and experiences.</td>
</tr>
<tr>
<td>4. Bracketing is employed beginning with data collection through writing of the final results.</td>
<td>4. Bracketing is initially important in collecting textural and structural descriptions and is diminished later during analysis to invite pre-understandings (i.e., professional knowledge, researcher’s experiences, and theory).</td>
</tr>
<tr>
<td>5. Follows a rigid process of analysis with interlocking steps.</td>
<td>5. Allows for flexibility in the steps offered as guidelines, especially for novice researchers.</td>
</tr>
</tbody>
</table>
processes of the steps are understood the researcher may be innovative in ways to approach the process. The steps in the IPA method are

1. reading and re-reading,
2. initial noting,
3. developing emerging themes,
4. search for connections across emergent themes, and
5. moving to the next case (Smith et al., 2012).

The first step is reading the entire transcript for a sense of the whole description. Repeated reading is recommended to identify how the narratives are bound together. The chronological accounts of the life stories told are examined for events in the overall life history of the participant. The events may reveal specific thoughts and feelings leading to micro-details and synthesis of possible connections throughout the entire text.

Initial noting occurs along-side the text in step two. The noting helps the researcher to avoid superficial reading of the text. The researcher explores the questions how and why of the participant’s narratives from the interview transcripts. The identification of abstract concepts emerges from the context of the participant’s lived world. At this stage, the researcher is involved in interpretive noting, which helps to identify abstract concepts to make sense of the patterns of meanings from the participant. Three levels of noting occur from least interpretive to most interpretive. These levels of initial noting are (1) descriptive commenting which describes the content of what the participant said, (2) linguistic comments, focusing on the use of language by the
participant, and (3) conceptual comments inspired by the researcher’s interrogative and conceptual thoughts (Smith et al., 2012).

*Step three* is the development of emergent themes. The researcher attempts to reduce the volume of transcript data and initial notes to map out the interconnections and patterns between the initial notes and exploratory sense-making. This process is indicative of the hermeneutic circle. In other words, the analysis comes together by examining the parts of the data and then re-organizing the data to express the psychological essence of the emerging phenomenon. Smith et al. (2012) recommends the themes or expressions contain enough particular evidence to be grounded in the data yet enough abstraction to be conceptual. The interest of the researcher is to identify the psychological construct of self from the participants viewpoint and the researcher’s conceptual understandings.

In *step four*, the research searches for connection across emergent themes. This step involves mapping or charting themes together spatially from the chronological descriptions. Some themes may be subsumed by other themes while other stand alone. In some cases, themes unrelated to the researcher’s interest are discarded. Similar themes may be grouped together while polarizing themes are examined for their differences. The researcher attends to contextualization (e.g., temporal, cultural, age, gender, etc.), numeration (e.g. frequency in which the theme is supported), and function of the theme (e.g., positive and negative presentations from the data). Although contextualization, numeration, and function carry no theoretical weight, the graphic representation of
themes is useful in looking to the gestalt (i.e., the whole being viewed as greater than its summed parts) that emerges from the connections across themes.

*Step five* is moving to the next case. The challenge for the researcher is to bracket the fore-structures of the previous case to maintain the systematic rigor of the steps of IPA. Smith et al. (2012) recommend commitment to the idiographic nature of IPA allowing new independent themes to emerge within each case.

*Step six* is the final step in the IPA process. In step six, the researcher searches for patterns across cases. This stage of the analysis considers the creation of super-ordinate themes, “in which participants represent unique idiographic instances but also share higher order qualities” (Smith et al., 201, p. 101).

Writing the results from interpretive phenomenological analysis. The results from IPA are usually presented in tables or figures showing the themes, which are illustrated for each participant. The results from step four are shared graphically and include supporting excerpts from the interview transcripts (Smith et al., 2012). Likewise, a master table of themes is presented for the group of participants. These results were from step six, which includes super-ordinate themes for the group at higher level of abstraction. The tables and graphs are further supported by the researcher’s narrative describing the final representation of data results.

**Trustworthiness and Credibility**

Trustworthiness and credibility are vital in persuading others that the research study is worth reading or listening to. Trustworthiness is associated with, reliability,
internal validity and the limited generalizability in conducting interpretive qualitative research (Merriam, 2009).

Reliability is a term that tends to be associated with quantitative research. The quantitative definition of reliability refers to the study’s potential to be replicated and yield similar results. Merriam (2009) distinguishes between reliability of qualitative studies compared to quantitative studies. Unlike quantitative studies, “the laws of human behavior cannot be isolated” (Merriam, 2009, p. 220). Expecting the same results from replication of the study is unlikely due to differences in contextual factors and human temperament. The term reliability from a qualitative standpoint refers to “whether the results are consistent with the data” (Merriam, 2009, p. 221). The consistent and dependable results from the same data confirms the reliability, which serves to improve trust in the researcher’s abilities and skills.

The term validity in qualitative research is associated with a credible and defensible result, meaning the research truly measures what it was intended to measure (Golafshani, 2003). Validity is improved with cross-validation, using multiple methods (e.g., observation and interviewing) to capture a more balanced view of the phenomenon (Elliot & Timulak, 2005). Qualitative researchers claim validity by convincingly showing how he or she arrived at the results. In this qualitative research study of adolescent virtual student experiences, validity referred to internal consistency between separate observers and between different sources of data.

The term generalizability or transferability is concerned with external validity of the study. In qualitative research, there is no claim to external validity since human
subjects are unpredictable due to factors such as different contexts, unique situational intentions of behavior, and temperamental changes. However, sufficient descriptive data makes transferability a reasonable choice for persons seeking applications in similar contextual situations elsewhere (Merriam, 2009). As the original researcher, there was no claim to generalizability elsewhere as the sites and contextual factors outside of the study were unknown. Only the research consumer may consider the transferability of the results from this study. The transferability is based on the research consumer’s perception of similar contexts that may yield similar results.

Two methods were employed to improve the trustworthiness of this research about adolescent student experiences in a particular virtual school, a triangulation strategy and the researcher’s reflexive journal. A description of the triangulation strategy and reflexive journaling are discussed in the following sections.

Triangulation Strategy

A triangulation strategy is often used in descriptive and interpretive approaches to qualitative research according to Elliot and Timulak (2005). According to Merriam (2009), “Triangulation uses multiple sources of data means comparing and cross-checking data collected through observations at different times or in different places, or interview data collected from people with different perspectives or from follow-up interviews with the same people” (p. 216). Using multiple data sources and the use of an independent observer examining the same data were strategies used to improve credibility and trustworthiness in this study of adolescent student experience in a particular virtual school.
Denzin and Lincoln (2008) cautions the use of triangulation to avoid mixing genres of text stating, “Mixed genres of text do not triangulate” (p. 406). In this research study, the genres were similar being realistic non-fiction accounts of first person experience. A description of the three triangulation strategies follow.

1. The first strategy was the primary data collection method from the semi-structured interviews converted to text verbatim. Excerpts from the interview transcripts leading to thematic descriptions were shared in Chapter IV to maintain transparency and support trustworthiness.

2. The second source of data was from two pre-interview activities (i.e., an autobiography and a daily journal of satisfactions/dissatisfactions). These written accounts were from the same participants exploring the overarching research question, “How do virtual school experiences meet the needs of students?” The participants’ written descriptions of experiences in the virtual school were compared to the overall interview transcripts which were voice recorded and converted to text verbatim. Inconsistencies between the written data and interview data were noted in the results.

3. The third triangulation strategy used in this research study of virtual school experiences was the use of an independent observer. According to Merriam (2009), credibility and trustworthiness is improved by “having two or more persons independently analyze the same qualitative data and compare their findings” (p. 216). This strategy is sometimes referred to as triangulating analyst.
Selection of the triangulating analyst. The individual selected for the triangulating analyst role in this research was an adult with at least 10 years of public high school experience in teaching English and serving as the K-12 librarian. The individual was familiar with online learning. The triangulation analyst earned a graduate degree in 2013, which consisted of face-to-face and online courses. In addition to having public teaching experiences with adolescent students, the triangulation analyst taught her five children as a private homeschool teacher. The preference was for an individual with evaluative experience in reading student research papers and being familiar with the characteristics of middle school students. The triangulating analyst was instructed to search for inconsistencies in the data by reading the transcripts and following the abstraction process of coding, conceptualizing of categories, and final construction of themes.

Procedures guiding the triangulating analyst. The following procedure was a guide, which granted the triangulation analyst to make modifications resulting in a chain of evidence. In this research study, the chain of evidence was derived from the researcher’s identification of meaning units (or initial notes for IPA), coding, conceptualizing constituents from similar codes into categories, and the final development of themes linked to the participants’ excerpts. The researcher’s analysis, or phenomenological reduction, was organized in tabular columns beginning with the original transcript on the left followed by multiple columns. The results from the data analysis were later described in psychological terms and motivational self-regulations by
participant. These final results were read by the triangulation analyst for internal consistency with the construction of themes.

Selecting excerpts from the transcript for partial comparison/review by the triangulation analyst. The researcher made a request to read at least 10% of the data representing each participant. The triangulation exceeded the request to read 10% of the data. All of the transcripts were read representing nine hours of interviews with the five participants. See Table 12 for a sampling procedure guiding the researcher’s selection of excerpts for partial review of the original transcripts. Table 12 was developed by the researcher to summarize the steps in the process to a single page for the triangulation analyst’s review. The researcher’s comments, choices, decisions and presuppositions are included in the first three columns using italics. The purpose of the selection procedure is to reduce the workload for the novice triangulation analyst that may (or may not) have a background in qualitative research. The triangulation analyst does not have the burden of repeating the phenomenological reduction process, which is presented in tabular form from the researcher. Rather, the triangulation analyst uses his or her energy to examine the phenomenological reduction as presented, in search of different interpretations of the reduction (i.e., creation of codes, code clusters, and themes). See Table 13 for reporting divergence or inconsistencies of findings between the two independent observers. The comments, codes, categories, and themes identified by the researcher may be underlined or coded by color at the discretion of the triangulation analyst. Inconsistencies between the researcher and triangulation analyst were noted in the second column of Table 13. The researcher’s actions were noted in the third column.
Table 12.

**Triangulation Analyst Review/Comparison Sample Procedure**

<table>
<thead>
<tr>
<th>Final theme. Reflexive commenting in italics.</th>
<th>Development of themes from categories and codes.</th>
<th>Meaning units or initial notes by reference number.</th>
<th>Excerpts from original transcripts including reference number.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing time was critical to success. Researcher’s comment (none)</td>
<td>Making a weekly schedule</td>
<td>Need to manage time. Self-discipline</td>
<td>Amy: I am constantly tempted to go outside and ride my horse, but that does not get my work done (Line 32). John: My paper was overdue and I lost points. It was a choice I made to get my other work done on time. (Line 57-58). Aaron: It pays to complete your work first. I can’t enjoy my time off when I know I have work to do (Lines 73-74). Susan: It took me awhile to get used to the freedom I had being in the virtual school. I finally decided to work ahead of schedule to have time off for my dance lessons (Lines 64-65).</td>
</tr>
</tbody>
</table>

Note: Researcher’s sample entries for guiding the triangulation analyst in reviewing data. The data and names in the sample were fictitious.
Table 13.

**Sample of Triangulating Analyst Comments and Researcher’s Actions Taken**

<table>
<thead>
<tr>
<th>Participant and Reference #.</th>
<th>Triangulation Analyst’s Comments</th>
<th>Researcher’s Actions Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>George, Lines Line #14-20</td>
<td>I think your coding may be viewed differently. The meaning of the statement, “I felt lost” may be coded as initially confused or recognizing a learning curve rather being disoriented.</td>
<td>Agreed. The research results will be altered to initially disoriented with a lack of prior knowledge.</td>
</tr>
<tr>
<td>Susan Line # 34</td>
<td>The comment was inconsistent with my thinking. I believe Susan worked at a slower pace due to challenges being of learning English as a second language rather than lacking grade-level reading skills.</td>
<td>No action taken. The inconsistency will be noted in Chapter IV results.</td>
</tr>
</tbody>
</table>

Note: Researcher’s sample entries for guiding the triangulation analyst in commenting on data. The data and names in the sample were fictitious. Coding is underlined in the sample data.

The researcher’s action may take two different paths. First, the inconsistencies may result in agreement with the triangulation analyst’s interpretations resulting in further review of the data or seeking additional data for improving internal consistency. Secondly, the differences may be duly noted as concerns or deficiencies of the study and reported in Chapter V. In the latter case, a discussion of weaknesses in the research findings may serve as implications for future research.

**Reflexive Journal Strategy**

Keeping a reflexive journal is a self-critical analysis of the choices recognized and the decisions made by the researcher during stages of data collection, data analysis, and the final write-up of the results. Merriam (2009) states, “Investigators need to explain their biases, dispositions, and assumptions regarding the research to be undertaken” (p.
219). The quest for the researcher in this study was to reveal presuppositions and how they may have influenced the conduct of the researcher.

During the research process, the researcher may be confronted with interpretive crisis emerging from the data collection and data analysis. Ortlipp (2008) described the interpretive crisis as a matter of control or non-control over the participants, the ontology of research colleagues or influential others, and shifting of the researcher’s epistemological viewpoints. In other words, the researcher brings baggage that may work to deconstruct the methods and re-shape the research from beginning to finish. The key point from Ortlipp (2008) was to reveal the baggage (e.g., presuppositions and external influences) carried by the researcher, make the researcher’s choices explicitly known, and inform the research consumer of the decisions made to alter the research accompanied by rationale.

Bracketing notes. In this research study, bracketing was employed differently due to the methodologies selected. The Descriptive Phenomenological Method in Psychology (Giorgi, 2009) maintains bracketing during the entire research process. Conversely, IPA (Smith et al., 2012) begins with bracketing during collection of textural descriptions similar to the descriptive method from Giorgi (2009). Unlike Giorgi’s method, IPA invites the interplay between the researcher’s interpretation and the participant’s interpretation of the textural and structural descriptions. Hence, the reflexive journal reveals the epistemological positions of the researcher, being either description or interpretation of the data collection which was made explicit to the reader using the reflexive journal strategy.
The reflexive journal consists of notes concerning the researcher’s embodied subjectivity (Finley, 2009). In this study, the issues arising from the research process were brought to the researcher’s attention regarding the manner of awareness and the object of awareness. The idea was to separate the presuppositions of the researcher from the participants’ descriptions. The inter-subjectivity between researcher and participant was made evident to research consumers, whom ultimately make their own interpretive claims in reviewing the literature. The comments and researcher’s actions were shared in Chapter IV to assist the research consumer in better understanding how and why the researcher arrived at the conclusions of the study. The research comments and actions were collected from notes displayed in the worksheets used to develop codes into final themes. The goal of the researcher was to present the reflexive issues, manner of awareness, the object of awareness, and the decisions made regarding the issue.

**Pilot Study**

The pilot study preceded the base study to evaluate the semi-structure interview protocol and the data collection process. Following each interview with the pilot participant, an evaluative discussion was held to discuss how the interview may be improved. The evaluative interview protocol addressed the comfort level, questioning procedure, use of external cues, and the voice recording procedure.

**Semi-Structured Interview Evaluation**

The recruitment process and selection of individuals for the pilot study was identical to the base study procedure. The pilot study was approved by the university’s human participants review for approval.
An evaluation of the pilot study was intended to improve the interviewing skills of the researcher and considered if the content of the interviews were sufficiently rich to extract personal meanings of virtual school experience relevant to the research questions. The semi-structured evaluation protocol was developed using guidance from Smith et al. (2012). The evaluation questions were provided to the participant and parent following the second interview. Questions one through seven were directed to the participant. Question eight was directed to the parent. The last question was directed to the participant and parent. However, the parent was welcome to respond to any of the preceding questions. The responses to these questions were noted by the researcher and later reflected upon during the self-evaluation of the pilot study. See Table 14 for the semi-structured interview evaluation questions.

Following the evaluation of the pilot interviews with the participant and parent, the researcher reflected on the evaluation notes for self-evaluation. The researcher documented responses to the following self-evaluation questions from Smith et al. (2012):

1. What was the most effective part of your interview and why?
2. How could your performance as an interviewer have been improved?
3. What was the most difficult thing about the conducting the interview?
4. In your own research, what will you need to work on to be an effective interviewer (p. 77).
Table 14.

Semi-Structured Interview Evaluation Questions for the Pilot Study

1. What was your comfort level during the interview? How might I improve your comfort level?

2. Did you feel some of the questions were troublesome? Which questions do you suggest avoiding? Are there other types of questions you feel should be asked?

3. Were the short probes and prompts helpful? Did you feel I listened to you and followed up in what you had to say?

4. How would you describe the external cues (i.e., autobiography assignment, five-day satisfaction – dissatisfaction journal, four square concept-map, pointing to something – pointing at the meaning tool, and the pluses and wishes graphic organizer)? Did any of these tools help you remember things?

5. Did you find reading the questions on paper and discussing the question before your responses as helpful (i.e., think aloud strategy)?

6. How did you feel about the voice recording procedure? Did the voice recording make you nervous? How might the procedure be improved?

7. Did you feel a need for a break at times to reflect on your experiences? Do long pauses help you remember things, or do long pauses create more anxiety for you?

8. Parent question: How might I improve interaction with your child, especially to seek out rich descriptions of past experiences in the virtual school?

9. Do you have any other suggestions that might be helpful in describing the experiences of virtual school students and how their learning needs are being met?

Once the self-evaluation questions were addressed, the researcher considered if the content of the interviews was pertinent to the research questions. Smith et al. (2012, p.77) suggests the final two questions:
1. What have you learned about your research question from the participant’s answers?

2. What kinds of knowledge have you had access to?

Changes to the research methods and strategies were noted in the results reported in Chapter IV. The Pilot Study Semi-structure Interview Questions: Evaluator’s Notes are presented in Appendix G and the Researcher’s Self-evaluation of Interviews and Content from the Pilot Study are presented in Appendix H.
CHAPTER IV

RESULTS

Chapter IV presents the findings of the study beginning with the pilot study. An evaluation of the pilot study resulted in some minor changes to the interview process, which were discussed. Following the discussion of the pilot study, the participants’ background information is presented. Next, two phenomenological methods are presented describing the data analysis. First, Giorgi’s (2009) Descriptive Phenomenological Method in Psychology resulted in 10 common constituents revealing the essences of virtual school experience among the adolescents. The psychologically sensitive meanings of virtual school experience were summarized by participant. The results of the descriptive phenomenological method were organized by research questions 1-3. The second phenomenological method used in this study was Smith’s et al. (2012) Interpretive Phenomenological Analysis (IPA). The interpretive phenomenological description explored the satisfactions and dissatisfactions of virtual school students according to self-determination theory (Deci & Ryan, 2000). A list of satisfactions and dissatisfactions were presented, which were interpreted for their relationship with three basic human needs for (1) competence, (2) relatedness, and (3) autonomy. Higher levels of self-regulation were associated with satisfaction of these basic needs (Deci & Ryan, 2000). The results were organized by research questions 4-6. Chapter IV concluded with the researcher’s bracketing notes to improve the credibility and trustworthiness of the study.
Pilot Study

The pilot study was implemented to determine the effectiveness of (1) interview questions, (2) pre-interview written activities, (3) use of external cues, and (4) the comfort level of the pilot participant. The procedure used in the pilot study mirrored the procedures planned for the base study.

The pilot participant was randomly selected from the 7th and 8th grade pool of virtual students attending the virtual school study setting. Based on the Participant’s Background Information Questionnaire, the participant was an eighth-grade, Multiracial male. His mother served as the participant’s in-home learning coach. At the time of the interview, the participant was in his second year of enrollment with the virtual school and reported having attendance at a different virtual school prior to his current placement. The prior virtual school placement lasted less than one year. The participant was in private home school from kindergarten through the fifth-grade. Lastly, the participant self-reported his overall academic grades to be A’s and B’s.

The pre-interview activities included the background participant information questionnaire, written autobiography, and five-day satisfaction and frustration journal. The participant was interviewed twice, one week apart for approximately 40 minutes per interview. The participant’s written autobiography was delivered during the first interview and the five-day satisfaction and dissatisfaction journal was completed just prior to the second interview.

The first interview was held in the participant’s home and the second interview was held in a public library due to a renovation project in the home. The process of voice
recording was implemented using a backup recorder. A semi-interview interview script of leading questions and potential follow-up questions were implemented as planned. These questions guided the interview seeking (1) structural descriptions, (2) textural descriptions, (3) probing questions for more detail of the given descriptions, and (4) prompting questions seeking the presence of objects, actions, and intentions.

External cues were tested during the second interview. The external cues were three different graphic organizers thought to give the student time to recall memorable virtual school experiences. The first graphic organizer was a four-square frame asking the participant to place a virtual school experience in each of the four squares. A second graphic organizer included two columns, which were labeled as *pluses* and *wishes*. A cue for the *pluses* column was a sentence completion activity, *I really like when...* (*fill-in the blank*). The *wishes* column prompted the participant to complete the following statement, *Sometimes I wish things could be different. I wish...* (*fill-in the blank*). The final external cue included two columns labeled *pointing to something* and *pointing to the meaning of something*. The *pointing* graphic organizer was designed to point out objects/actions in the virtual school experience in the first column followed by *pointing* out the personal meaning of the objects/actions in the second column.

The second interview was followed by an evaluation of the interview process to determine the effectiveness of (1) interview questions, (2) pre-interview activities, and (3) external cues. The parent attended the evaluation and was invited to provide input. See Appendix G for the Pilot Study Semi-evaluation Interview Questions Evaluator’s Notes for questions asked during the evaluation. In summary, the participant responded
by saying he felt comfortable during the interviews and did not view the questions as being troublesome. The participant found prompts and probes as beneficial including the length of pauses between questions. The two pre-interview activities were helpful, being about one-half page, double spaced text in each case. The external cues (i.e., graphic organizers) were perceived as confusing to the participant and resulted in three-minutes of wait time, which produced little information. The information written on the graphic organizers was previously discussed during the interview and did not result in new information. The participant mentioned a preference for verbal conversation, rather than completing the graphic organizers. The parent made a suggestion to allow more time for introductions prior to the first interview. Furthermore, the parent’s suggested learning more about their child’s background with the parent’s input. In other words, the parent valued more time to get to know each other prior to the first interview.

Using Appendix G – Researcher’s Self-evaluation of Interviews and Content from the Pilot Interview Study as a guideline, the following observations were made regarding the pilot interview. A complete data analysis of the participant’s data confirmed the effectiveness of answering the five research questions. The questions resulted in structural descriptions and textural descriptions of virtual school experience. Although the pre-written interview activities were effective, the during-interview graphic organizers were ineffective and appeared to be a waste of interview time. Another observation was the potentially long periods of silence without attempts made by the interviewer to create a conversation. The interviewer was challenged by leading the conversation while maintaining a sense of neutrality, rather than leading the question.
Many confirmation questions repeated what the participant had said in order to think of the next question. The interviewer noticed difficulty following proper grammatical structure while processing information at the same time. Another observation was the nature of the interview being similar to a talk-aloud conversation, seeking understanding of questions and answers. After examining the interview transcript, the majority of text was from the interviewer rather than the participant. However, there was sufficient text from the participant to answer the interview questions.

Changes to the interview process included (1) improve verbal grammar and nervous linguistic habits such as saying *uhm* repeatedly, (2) add a greater choice of follow-up questions to the semi-interview script, (3) increase the wait time for participant responses, (4) eliminate the use of graphic organizers during the interviews, and (5) provide more time for parents and participants to share background information and become acquainted with each other prior to the formal interview.

**Background Information by Participant**

The participants were given pseudonym names to protect their identities. A summary of the Participant Background Information Questionnaire was provided in Table 15. There were three females and two males in the base study. Only one participant was in the eighth grade with the remaining four participants in the seventh grade. The race/ethnicity were two African-Americans, two White, and one Multiracial. Four of the participants identified their mother as the learning coach, and one participant identified both parents as the learning coach. Prior school type was mixed among the participants. Two participants had prior school experience in traditional schools, one
participant was previously enrolled in traditional school and an out-of-state virtual school, one participant was previously enrolled in private home school and an out-of-state virtual school. Lastly, one participant was privately home schooled before enrolling into the virtual school. The years of enrollment included the current year in progress during the interview. The range of years enrolled in the virtual school was two to six years. Two of the five participants were previously enrolled in virtual schools, which were affiliated to their current virtual school. The affiliation was defined as separate public-school districts across the nation contracting with the same corporate virtual school provider. None of the participants had previous online course experience. All of the information in Table 15 was self-reported by the participants and confirmed during the interviews.

Common Themes of Experience Among Adolescent Virtual School Students

The common themes were defined as being common to all participants in the study. The common themes were

1. mutual needs of participants and family members being met in the home,
2. teacher-directed learning at a distance and in-home parental coaching, and
3. socialization occurs in the home, community, and during voluntary participation in virtual school activities.

Two types of constituents were identified in the construction of each common theme: (1) invariant constituents, and (2) variant constituents. Invariant constituents were identified having essential structures necessary for the theme to exist. Being invariant
Table 15.  

Participant Background Information.

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Kurt</th>
<th>Tatyonna</th>
<th>Jacob</th>
<th>Brianna</th>
<th>Freya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>male</td>
<td>female</td>
<td>male</td>
<td>female</td>
<td>female</td>
</tr>
<tr>
<td>Grade level</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>Multiracial</td>
<td>African-American</td>
<td>White</td>
<td>White</td>
<td>African-American</td>
</tr>
<tr>
<td>Learning coach</td>
<td>mother</td>
<td>mother</td>
<td>mother and father</td>
<td>mother</td>
<td>mother</td>
</tr>
<tr>
<td>Prior school type</td>
<td>Traditional school</td>
<td>Private homeschool</td>
<td>Traditional and virtual school</td>
<td>Private homeschool and virtual school</td>
<td>Traditional school</td>
</tr>
<tr>
<td>Years in the virtual school</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Average academic grades</td>
<td>B’s and C’s</td>
<td>A’s and B’s</td>
<td>C’s and D’s</td>
<td>A’s and B’s</td>
<td>B’s and C’s</td>
</tr>
<tr>
<td>Attended a different virtual school previously</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Have taken online courses in prior to the virtual school</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

indicates the constituent is common to all participants. The second type of constituent is referred to as a variant structure of experience. The variant structures support the common theme for some of the participants. Variant structures were included in the construction of themes if the constituent occurred in more than two participants, but less than all five participants. The recurrence of variant constituents was not considered essential to the thematic experience. However, the variant constituents were included for
their repetitive nature and personal meaning supporting the common theme. The terms
*invariant constituent* and *common constituent* were used interchangeably in the results.
Likewise, the terms *variant constituent* and *recurrent constituent* were interchangeable.

Details of the common constituents and recurrent constituents were supported from actual excerpts from the participants. Excerpts were embedded in the meaning units identified in the text. The meaning units (mu’s) represented shifts in meaning throughout the length of the interview transcripts and written autobiographies. The shifts in meaning were followed by a slash (/) and identification number beginning with /mu 1 through /mu x. The same procedure was used for each participant, beginning with /mu 1. The meaning units do not carry any theoretical weight, their only purpose was to determine the location of the excerpts for each participant. The meaning unit numbering scheme applied to the interview transcripts and autobiography as a single running script. Excerpts followed by brackets [ ] identify the researcher’s comments and notes associated with the participant’s response.

**Common Theme 1: Mutual Needs of the Participants and Family Members being Met in the Home Setting**

The first common theme was defined by having similar constituents structuring experiences shared by the participants. All of the participants supported an emerging theme, *having school in a protective home setting*. However, as seen on Table 16, the participants experienced the emerging theme differently. These differences included personal needs related to *avoiding anxiety disorders/issues* and a *sense of belonging* where school takes place.
Table 16.

*Theme 1: Mutual Needs of Participants and Family Members Being Met in the Home.*

<table>
<thead>
<tr>
<th>Constituents of the Theme 1 by participant.</th>
<th>Meaning Unit #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kurt’s Constituents:</strong></td>
<td></td>
</tr>
<tr>
<td>1. supportive family members present in the home</td>
<td>38/</td>
</tr>
<tr>
<td>2. needs of family members other than the participant</td>
<td>39/</td>
</tr>
<tr>
<td>3. avoiding anxiety disorders/issues</td>
<td>40.5, 41/</td>
</tr>
<tr>
<td>4. sense of belonging</td>
<td>33.5, 34/</td>
</tr>
<tr>
<td><strong>Tatyonna’s Constituents:</strong></td>
<td></td>
</tr>
<tr>
<td>1. supportive family members present in the home</td>
<td>2.5/</td>
</tr>
<tr>
<td>2. needs of family members other than the participant</td>
<td>3/</td>
</tr>
<tr>
<td>3. sense of belonging</td>
<td>44/</td>
</tr>
<tr>
<td><strong>Jacob’s Constituents:</strong></td>
<td></td>
</tr>
<tr>
<td>1. supportive family members present in the home</td>
<td>33.5, 34/</td>
</tr>
<tr>
<td>2. needs of family other than the participant</td>
<td>19/</td>
</tr>
<tr>
<td>3. avoiding anxiety disorders/issues</td>
<td>32/</td>
</tr>
<tr>
<td>4. sense of belonging</td>
<td>10, 11/</td>
</tr>
<tr>
<td><strong>Brianna’s Constituents:</strong></td>
<td></td>
</tr>
<tr>
<td>1. supportive family members present in the home</td>
<td>21.5/</td>
</tr>
<tr>
<td>2. needs of family members present in the home</td>
<td>46/</td>
</tr>
<tr>
<td>3. avoiding anxiety disorders/issues</td>
<td>48.5, 8/</td>
</tr>
<tr>
<td>4. sense of belonging</td>
<td>1/</td>
</tr>
<tr>
<td><strong>Freya’s Constituents:</strong></td>
<td></td>
</tr>
<tr>
<td>1. supportive family members present in the home</td>
<td>21/</td>
</tr>
<tr>
<td>2. needs of family member other than the participant</td>
<td>0.5, 2.6/</td>
</tr>
</tbody>
</table>

Of the four different constituents identified on Table 16, two of the constituents were common to all five participants, *supportive family members present in the home,* and *the needs of family members other than the participant.* Both of these constituents appeared to be essential, being invariant among all adolescent students participating in the study. The data suggests an interconnected structure between family members and the participants being present in the home during the school day. In other words,
participants fulfill some of the family members’ needs, and family members fulfill some of the participants’ needs.

As reported on Table 16, the data does not suggest the needs of participants and their families being the same across all cases. Two of the constituents were not common to all students, *avoiding anxiety disorders/issues*, and *sense of belonging in the school*. Based on a review of the invariant and variant constituents, the emerging theme *protective home setting* was later transformed to *mutual needs of participants and family members being met in the home*.

Table 17 identified the common and recurrent constituents by participant. Unlike the common constituents shared by all participants, *avoiding anxiety disorders/issues* were recurrent for three participants, Kurt, Jacob, and Brianna. Likewise, the constituent *sense of belonging in the school* was recurrent among three of the participants, Kurt, Tatyonna, and Jacob. Kurt and Jacob were linked to both recurrent constituents, *avoiding anxiety disorders/issues* and *sense of belonging in the school*. The next two sections discuss the common (i.e., invariant) constituents and recurrent (i.e., variant) constituents respectively.

**Invariant Constituents of Theme 1**

As reported on Table 17, two constituents were common to all participants, which identified the essence of the theme. The common constituents were *supportive family members present in the home* and *needs of family members other than the participant*. 
The participants’ excerpts to the theme’s constituents appear as a script in the following sections. Productive questions generating the common constituents of Theme 1 focused on (1) reasons for initial enrollment, (2) reasons for continuing enrollment, (3) who is present during the school day, (4) how do others make their presence known, and (5) who helps you with your schoolwork?

**Excerpts supporting constituent 1 (supportive family).** Beginning with the first common constituent, *supportive family members present in the home*, the participants revealed who was present in the home during the school day.

Kurt: (Name of virtual school) has been helpful for our family. My entire family unit (mom, her boyfriend, my sister, and my grandpa) are all in this adventure with me /mu 38.
Tatyonna: Because it was easier than the school (private home school) my mom was teaching, cause at the time there was five of us. And we were each in different grades, so she had to go to one grade to another, to another /mu2.5.

Jacob: Who help me with it? (virtual school art assignment). Uhm, I probably say, my sister [name] /mu33.5. You can see she is pretty good at drawing (pointing to drawings on the refrigerator). She started getting into drawing when she started getting into You Tube™ and all that /mu34. [Note: two older sisters were enrolled in the virtual school].

Brianna: Well, uhm, you see a little bit after dinner, after my mom is done doing school with my sister, we do school together, we do that math and some graded assignments /mu21.5.

Freya: Actually, I do love music (laughter). As a matter of fact, me and my brothers want to start a band /mu21. [Note: two older brothers were enrolled in the virtual school.]

Discussion of constituent 1 (supportive family). The participants do not appear to be alone in the home during the school day. In each case, the participants have close family members present rather than adults or youth from the community. Close family members include the mother, father, sister, brother, grandma, or grandpa. Other relatives or family friends tend to be present after the school day is over. Breaks during the school day did not include being with friends or other acquaintances for any of the participants.

Excerpts supporting constituent 2 (needs of family members). The second common constituent of Theme 1 was needs of family members other than the participant. Each participant supported this constituent based on the following excerpts.

Kurt: I have also done school in a hospital when my mom or grandpa were sick, and our family was at the hospital constantly /mu39. [Note: grandpa was receiving health care in Kurt’s home.]

Tatyonna: So yeah, what, I guess (name of virtual school) would be a lot easier because that way she (mom) has a break from all of those years of teaching us, going through grade to grade to grade. So, yeah, /mu3.
Jacob: So, I take stuff slower now because I am off the pills. And now I have friends that are helping me with it. Like my anger, my learning, and my, basically being nicer to people /mu19. [Note: Parents needed to resolve chronic behavioral issues in two prior school settings; Jacob previously received counseling and medications for an anxiety disorder.]

Brianna: … my parents, they live in the same house with me, and with my grandma's room, there would be like, is the teacher there? They don't know that the students can't hear them /mu46. [Note: Brianna's shared an area in her grandma's bedroom for completing school work and listening to live sessions on the computer. Her grandma lives with the family and receives health care in the home].

Freya: … my brother wanted to be homeschooled, and I just decided I would too, /mu0.5. [Note: Freya’s parent placed all three children in the virtual school at the same time. An older brother needed help that the mother thought would be best attained in the virtual school. Source: notes from the pre-interview background and introductions.]

Maybe /2.6. [Response to question, do you think you will go back to traditional school someday?]

Discussion supporting constituent 2 (needs of family members). The participants’ needs for supervision, attending to daily school work, and completing daily chores appear to be a collaborative effort with the family members present in the home. The implications of having family members present in the home include mutual needs such as socialization to avoid loneliness, feeling secure, receiving or providing care, keeping the home clean and orderly, preparing meals, and participating in family outings and family events.

Variant Constituents of the Theme 1

The variant constituents for Theme 1 were individually situated, having psychologically sensitive personal meanings. These variant constituents were items 3 and 4 found on Table 17. The variant constituent avoiding anxiety disorders/issues was
recurrent among three of the participants. Likewise, the variant constituent *sense of belonging in school* was shared by three of the participants.

**Excerpts supporting constituent 3 (anxiety disorders/issues).** Beginning with the variant constituent *avoiding anxiety disorders/issues*, Kurt, Jacob, and Tatyonna shared their experiences.

**Kurt:** I am also epileptic. Thunderstorms and lightning just happen to be one of my seizure triggers for my photosensitive epilepsy. I have to stay away from lightning and strobe lights. In the spring and fall, there are a lot of storms in (state’s name). I would miss a lot of school and school activities because it would be storming and I couldn’t go because I might have a seizure /40.5. [*Source: written autobiography.*]

My mom and I knew that with something I couldn’t control, we would have to find a solution to the problem. That is why virtual school is helpful to me because, if it is storming, I can still get my education /mu41. [*Source: written autobiography.*]

**Jacob:** What I drew was like, really good. I actually was like, it was like what was going on in my head. Like, it’s like, my head like has fear, like fear going into my head. And, like anger, I have so much anger in my head that I’ve been trying like to control it. But controlling it is not helping it, cause I’m just holding in /mu32. [*Note: Jacob shared the therapeutic nature of doing art projects as a form of expression. Jacob struggled with reading and writing literacies, resulting in frustration at times.*]

**Brianna:** Well, I think with my autism, it kind of helps to be in virtual school, because there's not as many things to give you a 'melt down’ /mu48.5. Hat-sit. The hat-sit. [unintelligible] It’s for the book, [pronounced very slowly] the Silver Hatchet /mu8. [*Note: Brianna was conscientious about her speech disorder and exhibited increased fidgeting when asked to repeat her responses for clarification.*]

**Discussion constituent 3 (anxiety disorders/issues).** The recurrent constituent *anxiety disorders/issues* were linked to Kurt, Jacob, and Brianna.

Beginning with Kurt, his photosensitive epilepsy is a constant concern with flashing strobe lights and lightning storms. During the pre-interview introductions,
Kurt’s mother shared that he had grand mal seizures, which may create injury or in extreme cases be fatal. The virtual school was compatible with the family’s need to protect Kurt from flashing lights, strobe lights, and lightning storms, which act as triggers of his epilepsy.

Jacob has anger issues, which causes him to be a bully or become a bullying victim. Jacob becomes easily frustrated in relating to others. Issues include communication skills, reading literacy, writing literacy, and impulsivity. As a form of expression, Jacob finds his art projects to be therapeutic, reducing his anxiety. Being in a protective home setting and having a supportive relationship with his parents and sisters was psychologically important to Jacob’s virtual school experience.

Brianna has been home schooled as long as she can remember. Her personal need was to reduce anxiety and avoid autistic meltdowns. Another source of anxiety for Brianna was her speech impediment, which challenges the listener to comprehend what she is saying at times. Brianna was conscientious of her anxiety disorders/issues and wishes to be understood by others. The virtual school supports Brianna’s need to focus and improve her concentration without many distractions.

Excerpts supporting constituent 4 (sense of belonging). Kurt, Tatyonna, Jacob, and Brianna shared their experiences with the constituent, sense of belonging in school (or lack of).

Kurt: The teachers are rude, the principal was mean, everybody in school was mean to me. The only really nice people in school were the lunch ladies /mu33.5, mu34. [Note: Sharing his memories from a traditional elementary school.]
Tatyonna: Well, let's say hypothetically, if you were a bumblebee (laughter) and there was this wasp that kept messing with you and stuff, I am a very sensitive butterfly (laughter). And I don't like to be picked on, cause I get very temperamental. Very temperamental! /mu44.

Jacob: Okay, I actually have a problem with my anger… when I bullied somebody, I did it because they didn't agree with me, or sometimes… I took control… but when I got into (traditional) school, I got bullied once, and I didn't like it… /mu11.

So, when I moved, I started to learn and all that, but when I went back to school (another traditional school) … I started being a bully again. And I didn't like it, so then I went to (virtual school name). And then, when I got in there, I did not bully at all /mu10.

Brianna My mom, kind of like put me in it. I think we get done with the [unintelligible]. But I think I'm saying what I want to say, (virtual school name), we try something else. I decided I wanted to stay, because I was like use to it, and I have some friends choose there /mu1.

Discussion of constituent 4 (sense of belonging). The recurrent constituent a sense of belonging in school was linked to Kurt, Tatyonna, and Jacob.

Kurt perceived everyone being mean except the lunch ladies in the traditional school he attended through the third grade. His excerpt suggests further study may be needed to understand Kurt’s detachment with supervising adults and peers in his traditional school experience. The perception of nearly everyone being mean was associated with a lack of belonging. Kurt did not have a sense of belonging in school.

Being supported by family members in the home setting appeared to be necessary for his personal need of belonging, where school can be experienced with less anxiety.

Tatyonna’s sense of belonging was from a speculative standpoint. Although Tatyonna has always been homeschooled, her friends tell her about their experiences attending the traditional school. Tatyonna prefers avoiding the traditional school using a
metaphor of her being a butterfly and other students being bumblebees or wasps. Tatyonna ends by stating she is very temperamental and does not wish to be picked on by peers. Being schooled in the home with supportive family members allows Tatyonna to choose friends that are compatible with her temperamental disposition.

Jacob realized he has an anger problem resulting in his bullying behavior in the traditional school environment. Jacob stated he bullied in two traditional schools that he previously attended. Since attending the virtual school, he does not bully anymore. Jacob does not like being a bully and finds the virtual school to be a friendlier school experience.

Brianna attended private home school in grades 1-3, and an affiliated virtual school in grades 4-5, located out-of-state. When Brianna’s family moved to her current location, she discussed enrolling in the current virtual school with her mother. Brianna felt she was familiar with the virtual school, and already had friends in the school. These factors contributed to her sense of belonging in the virtual school.

Summary of Theme 1

Two observations were made in the development of the theme: mutual needs of participants and family members being met in the home. First, the personal meanings of virtual school experiences represented the unique needs of each participant and the influence of contextual factors. Although, common and recurrent constituents were identified, these structures of experience were lived through differently. All of the participants sought to fulfill individual personal needs requiring supportive family members, while fulfilling the mutual needs of family members in the home. Secondly,
Theme 1 illuminated what attracted many of the participants to the virtual school and their rationale for continuing enrollment. This observation was shared in relating the findings by research question presented later in Chapter IV.

Moving to the next common theme, participants share some of their virtual school learning experiences.

**Common Theme 2: Teacher-directed Learning at a Distance and In-home Parental Coaching**

The second common theme was structured by seven constituents focusing on the experiences of learning in the virtual school. See Table 18 for constituents of virtual school learning experiences by participant. A majority of the constituents were common to all participants.

The most productive descriptions in constructing Theme 2 emerged from the participant’s consciousness followed by *prompts* asking what happened next, or *probes* seeking deeper meaning of the participant’s words or phrases. The initial questions sought descriptions of virtual school from a free-thinking perspective such as, please tell me about a memorable experience you had in the virtual school? Questions became more guided as the interview continued. For example, if the participant was not forthcoming with memorable experiences in the virtual school, then the participant was asked to describe his or her experiences during a favorite class yesterday or sometime last week. Follow-up questions focused on what physical objects were present, what non-physical objects were present (e.g., rules, expectations, personal goals), who was present, how did others make themselves known (e.g., face-to-face or virtually), what did you do at the
Table 18.

**Theme 2: Teacher-directed Learning at a Distance and In-home Parental Coaching.**

<table>
<thead>
<tr>
<th>Constituents of Theme 2 by participant.</th>
<th>Meaning Unit #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt’s Constituents:</td>
<td></td>
</tr>
<tr>
<td>1. using the LMS to plan, complete assignments and access resources.</td>
<td>13/</td>
</tr>
<tr>
<td>2. assessment requirements and options</td>
<td>7, 8, 9, 10.5/</td>
</tr>
<tr>
<td>3. independent learning and flexible pacing</td>
<td>9.6, 9.7, 11.5, 18, 20.5/</td>
</tr>
<tr>
<td>4. interacting with the virtual teacher and receiving extra help</td>
<td>15, 15.5, 16, 16.5, 16.6/</td>
</tr>
<tr>
<td>5. depending on the parent as learning coach</td>
<td>30/</td>
</tr>
<tr>
<td>6. academically challenging</td>
<td>32.5, 33/</td>
</tr>
<tr>
<td>7. kinesthetic learning</td>
<td>27, 32/</td>
</tr>
<tr>
<td>Tatyonna’s Constituents:</td>
<td></td>
</tr>
<tr>
<td>1. using the LMS to plan, complete assignments, access resources</td>
<td>21, 33.5/</td>
</tr>
<tr>
<td>2. assessment requirements and options</td>
<td>29, 32, 33, 34/</td>
</tr>
<tr>
<td>3. independent learning and flexible pacing</td>
<td>17, 22/</td>
</tr>
<tr>
<td>4. interacting with the virtual teacher and receiving extra help</td>
<td>4.5, 10, 10.5, 11.5, 18</td>
</tr>
<tr>
<td>5. depending on the parent as learning coach</td>
<td>5.5, 9/</td>
</tr>
<tr>
<td>6. academically challenging</td>
<td>41.5/</td>
</tr>
<tr>
<td>7. kinesthetic learning</td>
<td>12.5, 13/</td>
</tr>
<tr>
<td>Jacob’s Constituents:</td>
<td></td>
</tr>
<tr>
<td>1. using the LMS to plan, complete assignments, access resources</td>
<td>27/</td>
</tr>
<tr>
<td>2. assessment requirements and options</td>
<td>41, 42, 43/</td>
</tr>
<tr>
<td>3. independent learning and flexible pacing</td>
<td>17, 38.5, 51/</td>
</tr>
<tr>
<td>4. interacting with the virtual teacher and receiving extra help</td>
<td>23, 23.5, 25, 38, 42/</td>
</tr>
<tr>
<td>5. depending on the parent as learning coach</td>
<td>17.5, 23.4, 34.5/</td>
</tr>
<tr>
<td>6. academically challenging</td>
<td>45/</td>
</tr>
<tr>
<td>7. kinesthetic learning</td>
<td>29.5, 30/</td>
</tr>
</tbody>
</table>

(table continues)
Constituents of Theme 2 by participant.

<table>
<thead>
<tr>
<th>Constituents of Theme 2 by participant.</th>
<th>Meaning Unit #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brianna’s Constituents:</td>
<td></td>
</tr>
<tr>
<td>1. using the LMS to plan, complete assignments and access resources.</td>
<td>14, 16, 27/</td>
</tr>
<tr>
<td>2. assessment requirements and options</td>
<td>18.5, 21, 29/</td>
</tr>
<tr>
<td>3. independent learning and flexible pacing</td>
<td>25, 34.5, 35, 36, 37/</td>
</tr>
<tr>
<td>4. interacting with the virtual teacher and receiving extra help</td>
<td>10, 18, 22.5, 23, 31.5, 32/</td>
</tr>
<tr>
<td>5. depending on the parent as learning coach</td>
<td>21.5, 30, 30.5, 31/</td>
</tr>
<tr>
<td>6. academically challenging</td>
<td>54/</td>
</tr>
<tr>
<td>Freya’s Constituents:</td>
<td></td>
</tr>
<tr>
<td>1. using the LMS to plan, complete assignments, access resources</td>
<td>22/</td>
</tr>
<tr>
<td>2. assessment requirements and options</td>
<td>24, 26, 27, 28, 29, 29.5/</td>
</tr>
<tr>
<td>3. independent learning and flexible pacing</td>
<td>22.5, 41, 45.4, 45.5, 47/</td>
</tr>
<tr>
<td>4. interacting with the virtual teacher and receiving extra help</td>
<td>31, 32, 34, 35, 36.5, 37/</td>
</tr>
<tr>
<td>5. depending on the parent learning coach</td>
<td>39.5, 40, 42/</td>
</tr>
<tr>
<td>6. academically challenging</td>
<td>44.4, 45/</td>
</tr>
<tr>
<td>7. kinesthetic learning for core and non-core classes</td>
<td>12, 13, 13.5, 14/</td>
</tr>
</tbody>
</table>

time, and how did you know when you were finished? Later the interview, questions guided the participants to discuss how they learned in academic core classes and kinesthetic-based courses such as music, art, and physical education. Procedural questions asked how they received instruction, how they were assessed, how school work was exchanged with the teacher, and how they know what to do next during the school day? The concluding questions sought emotional responses and opinions among the participants. Each participant was asked if they were aware of any myths or misconceptions about virtual school students? If no response was provided, the students
were asked to respond to three myths: (1) all school work being done at the computer, (2) virtual schools being easier compared to traditional schools, and (3) virtual students being isolated and lacking social skills. The next question asked the participants if they had any advice for traditional students thinking about enrolling in a virtual school? And finally, the participants were given an opportunity to share anything else about their virtual school experiences that was not previously discussed.

Table 19 identified six common to all constituents and one recurrent constituent. A description of the results from Table 19 appear below as being either invariant constituents or variant constituents. The next section begins with the invariant constituents, which were common to all participants.

Invariant Constituents of Theme 2

As reported on Table 19, six constituents were common to all participants, which identified the essence of Theme 2. The six common constituents were (1) using the LMS to plan, complete assignments, and access resources, (2) assessment requirements and options, (3) independent learning and flexible pacing, (4) interacting with the virtual teacher and receiving extra help, (5) depending on the parent as learning coach, and (6) academically challenging.

Excerpts supporting constituent 1 (using the LMS system). The following excerpts support constituent 1, common to all participants.

Kurt: Uh, videos on instruction, what pages that I have to turn to, to get the right pages in the book, what chapter I need to get to, and helpful stuff that I need to do in the book to help me, and uh, the assessment at the end of the lesson /mu13.
Table 19.

*Identifying Common and Recurrent Constituents of Common Theme 2*

<table>
<thead>
<tr>
<th>Constituents of thematic structure (9)</th>
<th>Kurt</th>
<th>Tatyonna</th>
<th>Jacob</th>
<th>Brianna</th>
<th>Freya</th>
<th>Common to all?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. using the LMS to plan completion of assignments and access resources</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2. assessment requirements and options</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3. independent learning and flexible pacing</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>4. interacting with the virtual teacher and receiving extra help</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5. depending on the parent learning coach</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>6. academically challenging</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>7. kinesthetic learning</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Constituents shared with other participants</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

Tatyonna: Like when you sign in and you go to My Classes and scroll down and you will see science. Then you click on science thing, and then there is a list of what you are supposed to do today. And there is another one that tell you, like if you have a (live class session), what time it starts and what time it ends. And then there is one that, where you will see if you have stuff overdue, and what your progress is, and what your grade is /mu21.

Yes, it’s like a calendar. It tells you what you do. And so, it will tell you if you have a paper to do or what lessons don't have quizzes, or a lesson with a quiz. And it will tell you what time it’s supposed to be done by, so you go to current, and you scroll down and you look for the quiz, or it will automatically take you there. Uhm, if you click the thing on the calendar, and then you like, you push the top of the lesson, the introduction or something else, and you read through everything and take notes and stuff. It will say lesson review, you review everything and then you go to the next page, it will tell you, you know, there is a quiz or a paper /mu33.5.
Jacob: I believe it was history, if wasn't, it was math. Because it was blue… that’s how you tell /mu27. Note: [Jacob used the color coding found on the LMS to find his classes.]

Brianna: Well, like history lesson, there is like a little [unintelligible] like working, it can tell you like what you can be learning, it tells you to read the book, usually gives you what pages you have to read /mu16. I have a planner that keep all the lessons that supposed to do, that I write /mu27. It’s on paper /mu14. [Note: Brianna preferred writing her assignments from the LMS on a paper to determine what lessons to study and which graded assignments were due. Brianna posts the assignment due dates where it can be easily seen.]

Freya: And then it’s a slide screen. And it says what you are going to be learning today. And then you go to the next page and it will give you more details and stuff, so on and so on. You will go to one screen and it will say you have to read pages 190 through 220. And you have to read it. Then you do an assessment on what you just read and the ‘GUM’ grammar, uses, and mechanics… I think, and not only do you read… like you have to do verbs and stuff. And then you do an assessment /mu22. [Note: Freya recalled expectations such as reading assignments, mnemonic tools (GUM), and learning verbs.]

Discussion of the participants’ excerpts supporting constituent 1 (using the LMS system). All participants shared the role of the LMS to direct their daily work, access lessons, identify learning resources, keep track of their progress, provide warning when falling behind, completing assessments, and planning ahead. None of the participants used the terminology LMS. Rather, they tended to say things found on the computer, or what you see when you are at the computer.

Kurt uses the computer for instructions, assessments, videos, chapter/page assignments and supportive information.

Tatyonna has learned to navigate the LMS checking on tasks to be completed, tracking her progress on lesson assignments, monitoring her grades, and finding her live class session schedule. A calendar feature described what was due each day. Tatyonna
had the option to review the lesson or submit papers due and complete assessments from the LMS.

Jacob had difficulty reading and appreciated the color coding to find his lessons on the LMS. Jacob mentioned attending *live class sessions* in his interview transcript and the option to *chat with teachers* using the LMS. These latter two items were cited using *mu* numbers for the constituent *interacting with the virtual teacher*.

Brianna preferred writing her assignments on a paper planner and posting it on a bulletin board in her room. Her use of the LMS was indicated throughout the interview transcript including live class sessions and completing different types of assessments.

Freya provided many details about the LMS using an English class as an example. Freya was able to access mnemonic learning tool, find reading assignments, learn about the daily lesson objectives, and select assessments.

**Excerpts supporting constituent 2 (assessment requirements/options).** The second common constituent of the theme *teacher-directed learning at a distance and in-home coaching* involved assessing student learning in the virtual school. All participants shared experiences regarding assessment requirements and options. The participants were asked to if they had academic goals to begin a conversation about assessments.

Kurt: Yes. Definitely a goal of mine /mu7. I struggle at times /mu9. [*Note: Confirmed a self-reported goal of earning A’s and B’s on the participant background survey but struggled at times to earn good grades.*]

I’m fine with it (receiving a C grade or lower) /mu8. [*Note: Moving on to the next lesson rather than re-taking assessment for a better grade.*]

Yes, I did school a lot last week, to catch up and stay in school /mu10.5 [*Note: Needed to catch up with overdue assessments.*]
Tatyonna:  Uhm, mainly just to stay caught up and actually do my work and not get lazy, and slack off, and all that, I'm a very lazy person. I don't know why, I just am” /mu29.  [Note: Responding to a question about goals in school.]

An assessment, when you get done answering, you save your questions, you push this thing. You scroll down the screen, and you push this thing called or button, that says submit quiz, and then you will submit it and it will be graded automatically by itself. Papers, papers are different. After you get done answering and all that, you have to save it and then go back to the page, with the paper on it. And you have to upload the paper and submit it through an email that goes to your teacher, and you have to wait for them to grade it /mu32 … papers are a lot harder to do /mu33.

And for the quiz, it will have this button, you scroll down and you will see how many times you will be able to retake it. And, as you are scrolling down, there’s this button that says start quiz. Then you start the quiz and the questions will just pop, and you know (pause) then you go back into your notes and look at what you’re doing and all that /mu34.

Jacob:  My goal actually is to, basically just be able to graduate this year. To be able to graduate /mu41.

Yeah, I fix it by going, [pause] my teacher will re-set the guiding lesson, and have me do over, what I got wrong, so I can correct it and all that /mu42.  [Note: Describing the option to retake tests for a better grade.]

The test. I can re-read the lesson, if it was a long time ago and I don't remember what it was about. I have to read what I forgot and learn what I am doing. If it’s about [pause] I’ve been doing pretty good so far, so, if I fail then I fail /mu43.  [Note: Describing the option to retake tests for a better grade.]

Brianna:  My goal is to not fail. Like get a B or A /mu18.5

Well if I fail on a test, what I do is, they tell you what answers you got wrong and right. I usually write down which one's I got right and wrong. So, I, we take the test, and using the notes, I can do better /mu21.

There's comments, like usually because I do very good, he doesn’t have much to say, or it’s just like ‘good job.’ But one time, when I didn't know there was a second page to a paper, they did mention that I didn't do it /mu29.  [Note: Explaining how the teacher makes comments on teacher-graded assignments.]
Freya: I try to aim for a C, because a D is just passing, and I don't want to fail/mu29.5.

It’s like multiple choice. It doesn’t say like A, B, C, D or one, two, three, four. It's the question on top. The question numbers are above that. And below the question you have four to five answers to it. And depending on if you have to choose multiple, or just one of those, you work on it. In the middle school and high school, you get the option to save that in case your Internet goes down or something. But, back in fourth grade I didn't have that option to save that. /mu24 [Note: Explaining multiple choice questions on the LMS.]

After you turn it in, it used to be like I had to wait two minutes before I could find out what the grade was. Because the computer scores it. And then, unless the teacher scores it (pause) it will say the teacher scores it, cause you have to turn that in. Cause that means you have to type and stuff. You have to type your own answers /mu26.

Uhm, you are able to retake the assessment. Unless, you can't because you have three tries usually. And in history… you can't retake it unless you ask the teacher, and they will re-set it for you. And, the best thing about that is that your highest grade is the one that is reported /mu29.

I type it on the computer, after saving it, because it is a paper. And, then type it on the computer, save it, and then go back to the lesson. And then, it will give you the option of turning something in. I will click on that, then click on what I just finished. And then it will say, thank you for turning it in /mu27… usually the next day you will see when you log on to that class, it will say… one new thing, and you can click on that and it will say they graded your assignment /mu28.

And, if I turn it in late, I won't get full credit. And, I may get an A on it, but it doesn't matter, cause I won't get full credit /mu41.

Discussion of constituent 2 (assessment requirements/options). The assessment option involved a policy where virtual students may retake tests to improve their grade. In reviewing the data, there appeared to be tension between assessment options and the third constituent independent learning and flexible pacing. Spending more time on re-taking a lesson quiz reduced the time needed to stay current with all lessons, which was
in conflict with flexible pacing. Participants’ excerpts supporting the constituent assessment requirements and options are discussed next.

Kurt’s goals of achieving A’s and B’s in school was shared early in the interview transcript. However, Kurt seemed accepting of lower grades to move on to the next lesson. The implication is doing school work to stay current competes for time that might be spent improving grades with the option to retake tests.

Tatyonna’s goal in school is to keep up with her classes and avoid being lazy. According to Tatyonna, two different kinds of assessments are present in the virtual school. First, using the LMS, Tatyonna will complete lesson quizzes, which will be graded automatically. The quizzes found at the end of some lessons. Upon further review of the transcript, quizzes appeared to have a dual role of measuring academic achievement and serving as a self-checking tool for understanding. Tatyonna explained she was able to start the quiz, refer to her notes and review materials while taking the quiz. The LMS also tracked how many times Tatyonna may retake the quiz. The second type of assessment were paper or typed assignments graded by the teacher. Papers assignments were uploaded to the teacher using the LMS. Tatyonna must wait for the teacher to grade submitted papers.

Jacob’s major goal was to graduate from school. Jacob will retake quizzes to work towards his goal. The process involved re-reading information to improve his understanding before taking the quiz over again.

Brianna expressed her goal in school as earning A’s and B’s. According to Brianna, teacher graded assignments were different compared to the quizzes taken on the
computer. Brianna sends a file to the teacher for the “graded assignment” and waits for the teacher to read the assignment and grade it. Brianna was asked if the teacher makes comments on the graded assignments? Brianna does well in school and usually receives comments praising her school work.

Freya described her academic goals as aiming for a “C” grade. Freya explained multiple choice assessments found on the computer. There were questions with four or five multiple choice answers. Some of the questions will have more than one correct answer. The wait time for the computer quiz was about two minutes. Freya described the option to retake computer graded quizzes to improve grades. Freya stated, “you may retake the assessment three times.” The teacher may need to re-set the assessment allowing you to retake the assessment. Freya says the best thing about re-taking the assessment is that your highest grade was reported. Furthermore, Freya described how to upload a paper to the teacher to be graded. The process requires the paper to be scanned or typed as a file, saved to the computer, and uploaded to the teacher. The LMS let's Freya know if the paper was successfully uploaded. Freya will know when the paper was graded as it will show up as a new message on the LMS.

Excerpts supporting constituent 3 (independent learning and flexibility). The third common constituent of the theme teacher-directed learning at a distance and in-home parental coaching revealed a sense of self-control over the learning process. The control was manifested by choices to move at a faster pace, or slower pace if needed. Participants may choose to exercise options to seek extra time and assistance from the teacher. Another option related to learning style preferences, for some lessons the
participant may read from the computer or from textbooks, and other types of reading materials sent to the home. The following excerpts support the second constituent of the theme teacher-directed-learning and in-home parental coaching.

Kurt: I think I’m more in control /mu9.6. [Responding to question, do feel more in control of your learning, or do others have more control?]

Not really /mu9.7. [Responding to question, do you like being more in control?]

About through one-quarter of the history lesson /mu11.5. [Responding to question, what percent of time are you at the computer? Note: Kurt prefers spending more time using physical books and materials rather than reading strictly from the computer.]

Well some of them for helping with stuff you don't understand. Yes. Some of them are useful /mu18. [Responding to the question, are live sessions required? Note: Kurt elects to skip some live sessions and work independently.]

Well, it almost happened to me, because I did a lot of school this week. Because if I didn't get all this work done in two weeks I would have to seventh grade all over again and I wouldn't pass this semester. /mu 20.5 [Responding to a question if not doing well in school would it prevent grade advancement?]

Well, sometimes virtual school gets in the way of outside activities. Sometimes it helps me with the activity. And sometimes, I have enough time to do school before I do the activity or do the activities after I do school /mu28. [Responding to question, does the virtual school give you flexibility to do outside interests?]

Tatyonna: Uh, I don't use books very much, so there's little detail you might be able to get, but, so, uhm, for everything that’s in the lesson, it’s going to be in the book. Like if there's a material you may have missed, you go back to the book and see what it is like, and what's in it and stuff. It will show you the pictures and tell you what you are supposed to do and explain stuff, like that /mu22.
You know, I'm, people find this strange, but I don't take notes. I feel like they're useless, cause you can't, you end up losing them, and you can't find them, and then you're like oh-no, you need them. So, I Google™ stuff, to see if it is right or not /mu17.

Jacob: So, then we found [virtual school name]… it was perfect for me. It helped me a lot. I found people that helped me, they took it slow for me, so I didn't learn that quickly. They didn't want me to go like fast, fast. They want me to go slow. So, I took my reading slow /mu17.

Sometimes I have three days, a week, or like, until like a time to get it done. Yeah, so, sometimes I don't get that time done. So, I have overdue /mu51.

I'm doing a lesson now where she (virtual teacher) says I have to learn about Ireland and all that. Because I decided to pick that one. I'm learning how Ireland is doing. How they celebrate, and what they do, and all that. And, I haven't looked it up yet. I will be looking up some, I have to get, uh, she gave me more time, till Tuesday. So, cause, I get my live lesson on Tuesday /mu38.5.

Brianna: Well you have to do a lesson like once per day. It could be more flexible to you, the schedule, you have to do that lesson at some point in that day /mu25.

That doesn't happen. You can be ahead of people if you want /mu34.5 [Responding questions, can you work independent from other students? Do you need to wait for them, or they're waiting for you? Does that happen?]

Yeah. Like you could do it slow and do like parts of a lesson. Like, at the end of the day. Or, you can like just go through it from the beginning and maybe do the lesson for tomorrow /mu36. The lessons are all there /mu35. [Note: Pre-loaded fixed curriculum.]

Probably more time because, what I heard about traditional schools, you don't have much time to do stuff /mu37. [Responding to question, would you say virtual schools allow more time for personal interests or not?]

Freya It's better to turn in your papers late than never /mu45.4.

Yes, because I still haven't turned something in since the beginning of the school year (laughter). I feel really bad /mu45.5.

You can do it on computer. Because there is a virtual book on computer. But, they send materials, so you have the book in person /mu22.5.
[Responding to question, is the reading all on the computer, or is it not all on the computer?]

I like (virtual school name) because I get to move ahead and/or slow down in order to learn at my own pace.

Discussion of constituent 3 (independent learning and flexibility). Kurt feels he is more in control of his learning rather than others controlling his learning. However, Kurt does not always like having more control of his learning. Kurt admits needing to be pushed at times to complete his work, which was discussed in the next constituent, depending on parent as the learning coach. Kurt seems to value his mother’s guidance more than interacting with the teacher. Kurt does not attend all live class sessions, which gives him more flexibility in his day. However, flexibility in the daily schedule may be detrimental for students struggling to stay current and needing teacher assistance to do their best work. Kurt mentioned he almost failed seventh grade due to incomplete schoolwork. Being able to complete schoolwork away from the computer was a positive source of flexibility for Kurt. Kurt estimated working about 25% of the time at the computer and 75% of the time away from the computer. A large majority of Kurt’s school time is spent working with books and school items sent to his home. Kurt prefers being an independent learner at times. However, the demands for self-regulation may be a burden for students his age.

Tatyonna described her independent learning and flexibility as a preference to read from the computer rather than from physical books and learning materials. The physical books were aligned with the computer version offering flexibility. Tatyonna also demonstrated independent learning by refusing to take notes at the chagrin of her
mother. According to Tatyonna, it is easier to use computer searches to find the information you need.

Jacob was able to slow the pace of his learning to avoid frustration with instruction exceeding his abilities. Being pushed to go faster and keep up with others in school resulted in more anger and disobeying the teacher. The virtual school teachers expected Kurt to work at his instructional pace to reduce frustration with his schoolwork.

Brianna explained that lessons were due each day. Students may choose when to do the lessons within the day. According to Brianna, classmates do not wait for each other before proceeding with the lesson. Students have the flexibility to slow down and finish it the next day. Since the lessons were all on the computer, Brianna explained she could move ahead at a faster pace. Brianna believed she has more time for her personal interests compared to traditional schools based on what she has heard from others.

Freya described flexibility in having paper assignments accepted that were overdue from the beginning of the school year. Similar to Kurt’s experience, this type of flexibility may be negative if the student procrastinates at school and may be positive if needing to work at a slower pace to improve learning outcomes. Freya reinforced the experiences of others with the flexible choice of reading from the computer or books sent to the home.

Excerpts supporting constituent 4 (interacting with the virtual teacher). Interacting with the virtual teacher may be synchronous during live class sessions with the entire class, or specially arranged with a single student. In both cases, the live class sessions use the LMS video conferencing tool. Another synchronous option is using the
telephone, which appeared to be more prevalent between the virtual teacher and parents. The participants described the use of chat boxes, discussion boards, and email as asynchronous methods to interact with the teacher. The following excerpts support constituent 4 *interacting with the virtual teacher and receiving extra help.*

Kurt:  … we do (live class session name), which the teachers, all of the students get into a room though computers and we talk through webcams and mics, and the teacher is there /mu15.

Well, she gets into the room first, then she goes into a separate room, all of the kids get into one room and mess around before class starts /mu 15.5

It’s like a chat room /mu16.

And we usually do this thing where we read this story for a minute, the teacher would pull one of us out of the main room to one room and start a timer and lets us read for a minute to count the words (read) for the minute. Or, we would go over a math lesson or history lesson with that teacher /mu16.5.

And there is a button that you click on like, talk through the mic /mu16.6.

Tatyonna: Yes. See it was my first time and I had no idea what a (live class session name) was. So, it was, like what is this, I've never done this before. This is so confusing. And as I got used to it and stuff, I'm like oh, this is what that is for /mu4.5.

A (live class session) is where all the students come into this main room and the teacher teaches you like, this basic stuff to get you prepared for the quiz, or your big assignment or whatever. And, you, you go with your classmates and you pick teams or whatever. And you all help, help contribute to understand, stuff like that /mu10.

For Mondays, history is from eight to nine, and math is from nine to ten, and then English is at twelve-thirty to one-thirty. Than on Tuesdays, science is nine to ten, or no, (laughter) nine to nine thirty, but we usually get out before nine-thirty /mu11.5.
Well, I know Tuesdays and Thursdays are science, which is like one. And then Monday and Wednesdays are math, history and English.  

[Responding to question, how often do the live class sessions meet per week?]

Uhm, for science, we, see, we learn about organisms and organelles, and all that. And our science teacher, she shows us through Power Points™. Okay, so, you know if you Google™ an image like you are looking for, she'll show us that, but she won't really Google™ it, she'll already have it and stuff. And you know, she'll have these questions like what type of organelle is it, or what type of cell it is, and where is supposed to, were each supposed to, uhm, guess what it is. But then it depends on how many people, uhm think what it is, it depends on how many people say the actual answer.

[Note: Describing a live science class session.]

Then there is a recording you go back to and you watch the recording.

And then there's this thing called an exit ticket. Well, in my grade, you feel out this form where it tells you like, you put your first name, your last name, and the date, and like it will ask if you attended the last class. You can say yes or no. Then it will say what is the answer to Mrs., Mrs. uhm, Flowers (made up a fictitious name) Mrs. Flowers (laughter) question? So, you put the answer into this white box and you submit it and you get extra points for it.  

[Note: Describing how to receive extra points for attending a live class session.]

There's two ways (receiving extra help from the teacher). First way is you go to class home, and you go to the left side of the screen and there is this thing that says contact my teacher. And, when you push that it will pop-up and you will be able to send your teacher an email about, you want to redo the tests and stuff. And then the second thing is they have office hours where it will help you and stuff. So, like if (pause) say Mrs. Flowers (fictitious name), if you messed up and Mrs. Flowers had an office hour that you needed to attend to, you could push class home, and scroll down where your live class sessions are, then just click on that and it will take you into the office hours and she will help you and stuff.

It’s like, like a (live class session name), but it’s just you and your teacher and no one else. For me, it’s like, okay, let's just get this done so I can hurry up so I can go back to sleep or something.  [laughter] That’s how I am.  

[Note: Receiving a one-to-one live session help with the teacher]
And then, like if I'm in a (live class session name), and I'm also doing a quiz at the same time, I ask for my teacher for help. For me, its, it’s a breeze /mu18.

Jacob: In every lesson where I have to type and all that, I say hi and all that, or cool or something, cause, I don't know what to say? Cause I don't know what /mu38. [Note: Describing the chat option or discussion boards from the LMS. Jacob's response may be related to his poor reading and writing literacy.]

Yeah, I fix it by going (pause), my teacher will re-set the guiding lesson, and have me do over, what I got wrong, so I can correct it and all that /mu42.

Uhm, I had this, I got a thing now, because there a lot of experiences that I had in the virtual academy. It's fun, there was bad things and there was good things. Uhm, I have to say, when I accidentally, when I got really mad, I accidentally cursed at my teacher /mu23. Yeah, yeah, it was like, there was two Jacob's in the (live class session) classroom, but I didn't know which one she was talking to. So, when she was saying some stuff to us. I wasn't paying attention, I looked away for like a minute. And I heard her like yell at one of the Jacob's, like, like there was three Jacob's /mu23.5. I heard her yell at and tell it to one of us to shut up, and I was like, I didn't know which one. So, I told her, I said shut the "F" up. I'm like, she was like what? (laughter). Everyone was so surprised. It said what, what, what in the comments thing, so I got into a little trouble, I exited out and got into trouble. I didn't think my parents would find out, but yeah, they found out. Yeah. It was a bad time, but, I found out which one she was yelling at. It was the one that I forgot, she yelled at him for saying, for speaking and all that. He was being like really loud and distactoring everybody else /mu25. [Note: Describing live interaction with the teacher with students questioning negative behavior in chat box.]

Brianna: Uhm, I haven't done the pages for the lesson yet. But, the live class session happened at ten o’clock to eleven o’clock /mu9. We usually start out with 10 minutes, with this news thing, cause we also talk about present stuff. And it was about slavery and like today. And now still slaves, and he (virtual teacher) also talked about people before Columbus /mu10. Like in modern day history, he (Christopher Columbus) was less than a hero. Because he cut off the hands, [unintelligible] he was bad to the Americas and the indigenous people. [Note: Describing teacher/student interaction in a social studies lesson comparing slavery with Columbus discovering the Americas with current events.]
Well there are also rules, like in (live class sessions), you have to, there is a text box and you have to be polite and stay on task with the topic, and not go off topic /mu18.

There are a lot of students in the classroom. I think it’s kind of like being in a normal classroom, except you get help more, and you can't see anyone /mu23. Uh, you can maybe raise your hand… use the microphone, or you can tap in the text box what your question is /mu22.5.

Well, there's these office hours, and you can contact them, but usually be specific, [unintelligible] maybe after a (live class session name) is done you can catch the teacher before they leave and ask your questions /31.5. I usually don't have very many questions. But like, I probably ask anyway during the lesson /mu32.

Freya: Uhm, there's a few ways (to interact with virtual teachers). Uhm, you can go to a live class session… I went to an English (live class session name) a few days or a weeks ago, not sure. And, she was checking on all of the students' work, and I raised my hand and she said, what do you need? And I said, how do I get my grade up, because I was failing at the time. And my English teacher said, let me check your work… /mu31.

I could see, because on the left-hand side (computer screen) it's the (student) names and on the right-hand side of the screen… it is what the teacher puts up there, unless the students have permission to use the white board. And, I could see her screen. Then I realized, the teacher can actually see what you are doing in school (laughter). I thought it was pretty cool /mu32.

The (live class sessions) are like thirty minutes long. Uhm, for the courses. But for the extracurricular, like drama, they say they're an hour-long, but they are really only thirty minutes /mu34. Three times a week maybe /mu35. [Note: Response to question, how often do the virtual classes meet in a week?]

Because it's a help desk. If you need help you can go. But I choose not to go, even though I'm failing /mu36.5. Uhm, but the other one's you have to go. And when you go, you have to pay attention and stuff, because they will give you extra credit, because you have to fill out this exit ticket. And when you send in the exit ticket, you'll get the extra points and stuff. And I'll try to stick around for that /mu37. [Note: Describing an opportunity to seek help from the teacher at the end of the live class session and picking up extra points when exiting at the end of the live class session.]
Discussion of constituent 4 (interaction with the virtual teacher). Kurt described live class sessions as entering a chat room. The teacher set-up the lesson while students entered the live class session. According to Kurt, the live class sessions began with a reading activity followed by interaction with the virtual teacher using a mic.

Tatyonna mentioned a learning curve moving from private home school to the virtual school. Using the computer LMS was a new and sometimes confusing experience. Eventually, Tatyonna was able to navigate the LMS and access live class sessions. The students virtually enter the main room where the teacher provided basic instruction in preparation for an assignment, quiz, or whatever. Tatyonna explained that her classmates were present and at times, she was placed in a small group to improve understanding of the subject. The live class sessions were about an hour long in reviewing her schedule for Mondays and Tuesdays. Tatyonna had live class sessions twice per week for her core classes; Mondays and Wednesdays for math, history, and English; Tuesdays and Wednesday for science classes. The class sessions ranged from 30 minutes to an hour in length. At times, Tatyonna asked the teacher for help with her quizzes during or after the live class sessions. Tatyonna described an interactive LMS tool used in her science class where students were surveyed to determine how many had the correct answer. According to Tatyonna, students were able to watch a live class session as a recorded lesson if missed previously. Students received extra points as an incentive to attend live class sessions by completing a form and answering the teacher’s exit ticket question. Tatyonna described two ways to interact with the teacher for extra time and assistance. First, using the LMS, students may send an email request to re-set
quizzes and secondly, the student may request a one-to-one live class session with the teacher. At times, Tatyonna has asked her teacher for help on a lesson quiz while attending a live class session.

Jacob struggled with writing skills and finds it difficult to interact with the teacher in writing. When receiving an F for a grade, Jacob has interacted with the teacher to reset the quiz. Jacob shared a behavioral incident as an experience with teacher and student interaction during live class sessions. According to Jacob, he told the virtual teacher to shut the "F" up when he heard her yelling at one of the three Jacobs in the classroom. Everyone was so surprised stating “what” in the comments portion of the virtual class session. Jacob found out that the teacher was yelling at a different Jacob for being loud and distracting others. Jacob’s experience demonstrated interaction with the teacher and the live reaction of classmates during a behavioral incident.

Brianna described a live class session which occurred the morning of her interview. She is still working on the pages associated with the lesson. Brianna stated the history class session began with current news events for about 10 minutes. The lesson was about slavery in the past and present. The lesson included information about Christopher Columbus, and his vile acts with indigenous Indians. Another description of experience Brianna described the presence of non-physical objects, such as rules for classroom etiquette. According to Brianna, students were expected to stay on topic and be polite using the interactive text box. Brianna described a live class session as a virtual room where students and the teacher were present and can hear each other. Students used an LMS tool to raise their hand in class, which becomes visible on all computer screens.
in the virtual classroom. Other LMS interactive tools were described as using a mic or
text box to ask the teacher questions or make comments visible to the teacher and
students. Brianna explained that students may contact teachers during office hours for
one-to-one help. Brianna usually does not have many questions and prefers asking
questions during the live lessons.

Freya stated being in virtual school is actually harder compared to being in a
traditional school. Freya rationalized that traditional school students have instant access
to their teachers, they may raise their hand and the teacher will be there. According to
Freya, in the virtual school, teachers may be busy grading papers and other tasks, they
cannot get back to you as soon as possible. Freya explained how to receive extra help
from the teacher to improve her grade. During the live session class sessions, Freya has
raised her hand (using LMS tool) and the teacher responded, what do you need? Freya
described teacher-student interaction by sharing computer screens. The teacher may
grant permission to use the white board on the teacher's screen. Freya was surprised to
see that the teacher is able to see what you are doing on your screen. In some courses,
Freya may access a help desk for assistance. Freya preferred staying after live class
sessions to access extra help and receive extra credit by completing an exit ticket.

Excerpts supporting constituent 5 (parent as learning coach). According to school
policy, the participants in the middle school must have a learning coach. All of the
participants identified their mothers as a parental learning coach. However, the
participants sometimes refer to their parent as the teacher within the home setting. All of
the participants recognize their virtual teachers as their teachers outside of the home
setting. Some of the description simply acknowledge having a parental learning coach, while other participants share more intimate connections to their parent as learning coach.

Kurt: Yes, she does. She tells us what assignments we need to get done that day /mu30.

Tatyonna: Yes /mu9. [Response to question, is your mom the learning coach?]

So, we had this testing thing at the end of the year. And, I was so nervous, I thought I was going to fail. But, my mom told me that my older brother, he got first place, and I was in second. Oh, what a relief! /mu5.5. [Note: The learning coach was responsible for taking the student to the annual statewide assessments, which were regionally located.]

Jacob: But then I started going through them too fast and doing that, cause, I was in the other one (different school). It was not helping me. So, my mom (learning coach) gave me a talk to help me go slower /mu17.5.

Yeah, I didn't tell my mom that /mu23.4. [Note: Looks at mom during a discussion of a behavioral incident in the virtual school. Jacob says, 'what?' Jacob's mother replied, 'I know about it... the teacher and I talked. ']

… they (the art teacher) see my drawings, my mom prints and sends it to them by printer so they can see it. When they see it, that's what I draw /mu34.5.

Brianna: Well, uhm, you see a little bit after dinner, after my mom is done doing school with my sister, we do school together, we do that math and some graded assignments /mu21.5.

Well, with my mom, I have to do math with my mom, and like, [unintelligible] good at it. So, I have an A in math, but you wouldn't be able to tell in a (live class session). Because my mom's not there so, I get stuff wrong /mu30.

Well, the learning coach makes sure you are doing stuff. Contacts teachers if something is wrong /mu30.5. They (learning coaches) help you with lessons /mu31. [Responding to question, what kind of things does the learning coach do?]

Freya: The learning coach helps you. Basically, she's your teacher when your teacher is not there /mu39.5. Yes, see if I'm working and stuff /mu40.
I know she sends (school emails) to the teachers /mu42.  [Note: The learning coach served as a liaison between the student and teacher.]

Discussion of constituent 5 (parent as learning coach).  Kurt stated his mother served as the learning coach.  According to Kurt, his mother is in control of his time for school and time for outside activities.

Tatyonna recognized her mother as being the parental learning coach.  Tatyonna explained a role of the learning coach to bring their child to regional centers to participate in the annual statewide assessment.

Jacob depended on his mother for his welfare at school.  In prior schools, the instructional pace was too fast, which created frustration and anger issues.  Jacob’s mom worked to calm Jacob and take things at a slower pace in school.  As the learning coach, Jacob’s mom has discussed behavioral issues with his virtual teachers.  Jacob’s explained his mother assisting with uploading his art drawings to his art teacher.

Brianna received extra help from her mom as the learning coach, especially in math.  Brianna explained the role of her mom as her learning coach.  Having a learning coach is important to stay on task.  The learning coach will contact the teacher if something is wrong with the LMS.  The learning coach acts as a liaison between the virtual teacher and virtual student.

Freya says her learning coach kept track of three children in the virtual school.  The learning coach sends emails to teachers for communications.  According to Freya, the learning coach guided her to keep working and complete her school work.

Excerpts supporting constituent 6 (academically challenging).  All participants felt the virtual school was academically challenging.  These feelings supported the virtual
school as a legitimate delivery system of public education in the home. In some cases, participants perceived the virtual school as being at least equal in academic rigor or higher compared to traditional schools.

Kurt: Well, in like uhm, you can be on a computer all day, blah, blah, blah, you can do this, they're wrong. They can say what they want to say. We're getting more education... [Responding to question, do you know of any myths or misconceptions about virtual school students?]

Yes. I felt like I was /mu33. [Responding to question, are you saying you get a stronger education compared to traditional school?]

Tatyonna: That is a myth. Cause, we get just as much schoolwork as traditional school. But, maybe this is easier than traditional school cause, you know, you are at home, you know, you can wear whatever you want, you don't have to wear school clothes or nothing, but for the assignment parts, no that's not easy (laughter) /mu41.5. [Responding to question, is virtual school easier compared to traditional school?]

Jacob: Oh yeah. I've heard those. No, it's not, it's a definite myth. Because, it's not easy, they may think it's easy, cause I get done early, but no, that's because I want to get done with my school. Sometimes really quickly so I can get done with my chores. As you can see my house looks pretty clean now. But it wasn't always this way. But whenever I do that, I don't listen, and don't do my chores, so I get grounded, and I don't get friends over. So, I plan on keeping this house clean for as long as I can /mu45. [Responding to question, is virtual school easier compared to traditional school.]

Brianna: Well it's still going to be as hard as regular school. In fact, with this school, I think it is a high up school. It's very popular, so it is kind of like, hard /mu54. [Responding to question, is virtual school easier compared to traditional school.]

Freya: Because I have the best of both worlds, and I've been in public school, and a home school, I am able to easily deny what they think. Because my friends are like, you are lucky you don't even have to go out of the house /mu44.4. [Responding to question, is virtual school easier compared to traditional school.]

Because, in public school, this is probably going to sound horrible, uhm, in public school the teachers are always around... in home school yes, they are around, but sometimes you can't contact them instantly. And because they are busy, they are grading papers and stuff, they can't get back to you as
soon as possible, but public school they (traditional students) are able to raise their hand and the teacher comes right over to your desk. Yeah, I think it is harder because of that /mu45.

**Discussion of constituent 6 (academically challenging).** Tatyonna, Jacob and Freya share the same viewpoint of virtual schools being just as challenging compared to traditional schools. Kurt and Brianna believe the virtual school is more academically challenging compared to traditional schools. Tatyonna and Freya grant that virtual schools may be easier as a matter of convenience. Virtual students were able to stay home and dress casually. Freya granted that it may be easier to access your teacher in a traditional school by simply raising you hand.

**Variant Constituents of Theme 2**

There was a single variant constituent of the theme *teacher-directed learning at a distance and in-home parental coaching*. The recurrent constituent was *kinesthetic learning for core and non-core classes*, which was supported by Kurt, Tatyonna, Jacob, and Freya.

**Excerpts supporting constituent 7 (kinesthetic learning).** The participants have kinesthetic experiences in art, music, and physical education classes. Some of the participants mentioned optional field trips. However, none of the participants attended field trips since being in the virtual school. Most of the constituents described kinesthetic learning as doing art, music, and physical education. The kinesthetic constituent was considered to be variant as data regarding *kinesthetic learning*. The interviewer inadvertently omitted questions about *kinesthetic learning* with Brianna.

Kurt: Uhmm, that you don't get book, you don't get a big box, to get our items to help us do school. Well we do buy some of the stuff, but that’s like pencils
and stuff /mu32. [Note: Responding to a myth, all learning is on the computer]

Well, music and, with music you get your music box, like you get rhythm sticks, tambourine or something, you get DVDs to help you with the song you have to do. And you get patterns. In art, you get clay and paint, paper. In PE, I just normally go outside and play fetch with my dog or play soccer for PE /mu27.

Tatyonna: PE is just like going to the ‘Y’ /mu12.5 or running outside or going up and downstairs /mu13.

Jacob Oh, I would be drawing with a pencil. Or probably, yeah, a pencil, cause I only draw with pencils and all that /mu29.5.

Uhm, once it actual told me to do a clay model of a face or something, and I did that. It was fine, I did it before /mu30.

Freya: Okay. For music, I'm actually not entirely sure /mu12. But for art, you actually send in your art work to the teacher, via printer and stuff /mu13. Uhm, PE, you can (pause), there is like a list of things you can do for PE, ballet, and gymnastics /mu13.5. And you click on whichever one you want to do, or are in. And, you get to type in how long you did it. Whatever you did for PE /mu14. [Responding to question, how does the virtual school check on art, music, and physical education?].

Discussion of constituent 7 (kinesthetic learning). Kurt dispelled a myth of virtual students only learning on the computer all day. Kurt received a box of materials to utilize for learning experiences. Some of the items included rhythm sticks, tambourine for music, clay, paint, and paper for art. Objects were not sent for physical education. Kurt usually plays soccer or fetch with his dog to meet his physical education requirements.

Tatyonna described *kinesthetic learning* as doing music, art and physical education. Tatyonna plays the piano and enjoys singing. Music and art included “how
to” videos and physical education included activities such as going to the YMCA, running outside, or going up and down stairs in the home.

Jacob has completed art drawings using pencil and some clay models for art class. Sometimes the teacher or lesson directs Jacob to draw certain things or create certain clay figures, such as someone's face.

Brianna did not discuss kinesthetic learning activities. Likely due to inadvertently omitting the subject of music, art and physical education during the interview.

Freya was not aware of any music performances in the virtual school. Music instruction appeared to be for knowledge rather than performance. Freya sent her art project to the art teacher using a printer/scanner. Freya logged her physical education activity using the LMS.

Summary of Theme 2

The structural and textural descriptions of the theme teacher-directed learning at a distance and in-home parental coaching appeared to have little psychological sensitivity at first. Questions tended to ask what was present during the experience and how did the experience unfold. Later in the interview, questions about myths illuminated some psychological sensitive topics. For example, Kurt appeared to be frustrated with a myth he identified on his own, that all learning is at the computer /mu32.

An underlying psychological sensitivity appeared to be the challenge of maintaining an instructional pace to avoid overdue assignments in the school. All of the participants were required to do daily school planning, practice organizational skills, and complete lessons in a timely manner. Although the participants had the option to retake
quizzes, completing the entire lesson sequence for the school year was a constant demand. Consequently, participants weighed the value of re-taking lesson quizzes with the potential of falling behind in their schoolwork. The constituent learning with peers appeared to be psychologically sensitive for some of the participants. When confronted with the myth, virtual schools being easier compared to traditional schools, some of the participants responded that remaining at home may be easier compared to traditional schools. However, nearly all participants perceived the virtual school as being academically rigorous and more challenging compared to traditional schools. The academic rigor contributed to a sense of legitimacy, where learning from a public school may be completed in the home.

The seven common constituents emerged as the necessary components of the virtual school, being a public school accessible in the home. In other words, without the LMS, assessment options, independent learning, teacher interaction, parental coaching, and being academically challenging, Theme 2 ceases to exist and psychological fallout may occur among the participants.

The evidence of the psychological sensitivity of Theme 2 was embedded in Theme 1, mutual needs of participants’ and family members being met in the home. Theme 1 questions tended to go beyond what and how descriptions of Theme 2. Why students were attracted to the virtual school and why they continued their enrollment had much deeper meaning. However, without the common constituents of the second theme, the first theme collapses as the virtual school would no longer exist. Hence, the psychological sensitivity of Theme 1 and Theme 2 appeared to be intertwined.
Common Theme 3: Socialization Occurs in the Home, Community, and During Voluntary Participation in Virtual School Activities.

The third theme emerged from questions guiding the participants to discuss socialization practices. The socialization tended to include the presence of family members, friends, virtual teachers, and virtual student peers. The socialization with family members and friends was common while socialization with virtual teachers and virtual peers appeared to be optional activities practiced by some of the participants. The socialization occurring during live class sessions and the required discussion boards were attributed to Theme 2, teacher-directed learning at a distance and in-home parental coaching. In particular, Theme 2 constituent interacting with the virtual teacher and receiving extra help overlapped with the socialization aspect of Theme 3. Consequently, the third theme focused on voluntary virtual school activities rather than required socialization activities in the virtual school.

Socializing with family members and friends was commonplace among the participants. Exposure to classmates and same age peers was found to be a different experience for virtual students compared to traditional school students.

Table 20 identified three constituents of the third theme: (1) dispel socialization myths, (2) socialization at home and community, and (3) voluntary virtual school activities. Questions most effective in development of Theme 3 were related to (1) was there flexibility during the school day for outside interests, (2) have you participated in learning activities with other virtual students or classmates, and (3) what is your reaction to myths of isolation and lack of socialization of virtual school students?
Table 20.

Theme 3: Socialization Occurs in the Home, Community, and During Voluntary Participation in Virtual School Activities

<table>
<thead>
<tr>
<th>Constituents of the Theme 3 by participant.</th>
<th>Meaning Unit #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt’s Constituents:</td>
<td></td>
</tr>
<tr>
<td>1. dispel socialization myths</td>
<td>35.5/</td>
</tr>
<tr>
<td>2. socialization at home and community</td>
<td>31, 38.5/</td>
</tr>
<tr>
<td>Tatyonna’s Constituents:</td>
<td></td>
</tr>
<tr>
<td>1. dispel socialization myths</td>
<td>41, 43/</td>
</tr>
<tr>
<td>2. socialization at home and community</td>
<td>2.4, 12.5, 43.5, 43.6/</td>
</tr>
<tr>
<td>3. virtual school activities/opportunities</td>
<td>27, 28/</td>
</tr>
<tr>
<td>Jacob’s Constituent’s</td>
<td></td>
</tr>
<tr>
<td>1. dispel socialization myths</td>
<td>47/</td>
</tr>
<tr>
<td>2. socialization at home and community</td>
<td>7, 29.6/</td>
</tr>
<tr>
<td>3. virtual school activities/opportunities</td>
<td>1, 47, 49.5, 50, 56/</td>
</tr>
<tr>
<td>Brianna’s Constituents:</td>
<td></td>
</tr>
<tr>
<td>1. dispel socialization myths</td>
<td>48/</td>
</tr>
<tr>
<td>2. socialization at home and community</td>
<td>1, 47, 49.5, 50, 56/</td>
</tr>
<tr>
<td>3. virtual school activities/opportunities</td>
<td>39, 39.5, 40, 42, 43, 43.5, 44/</td>
</tr>
<tr>
<td>Freya’s Constituents:</td>
<td></td>
</tr>
<tr>
<td>1. dispel socialization myths</td>
<td>44/</td>
</tr>
<tr>
<td>2. socialization at home and community</td>
<td>43/</td>
</tr>
<tr>
<td>3. virtual school activities/opportunities</td>
<td>21/</td>
</tr>
</tbody>
</table>

Two of the three constituents were common to all participants, dispel socialization myths, and socialization at home and community. This second constituent appeared to be related to Theme 1, mutual needs of participants and family members being met in the home. However, socialization in the first theme tended to have diverse personal meanings for exercising the school choice option, rather than addressing a singular need for socialization. The underlying questions supporting Theme 3 were (1)
do virtual school students socialize voluntarily with others in the community, (2) do virtual school students voluntarily socialize with their virtual peers, and (3) how do virtual students socialize with each other? Hence, Theme 3 was aligned to socialization for its own sake, rather than socialization relating to supportive family members present in the home, needs of family members other than the participant, anxiety disorders/issues, and sense of belonging.

In Table 21, the common and recurrent constituents were identified by the participants. There were two common constituents, dispel socialization myths, and socialization in the home and community. A single recurrent constituent was virtual school activities/opportunities. Excerpts from the participants and discussion of the excerpts follow.

Table 21.

Identifying Common and Recurrent Constituents of Common Theme 3

<table>
<thead>
<tr>
<th>Constituents of thematic structure (4)</th>
<th>Kurt</th>
<th>Tatyonna</th>
<th>Jacob</th>
<th>Brianna</th>
<th>Freya</th>
<th>Common to all?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. dispel socialization myths</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2. socialization in the home and community</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3. virtual school activities/opportunities</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Constituents shared with other participants</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
Invariant Constituents of Theme 3

The invariant constituents shared by all participants were dispel socialization myths, and socialization in the home and community.

Excerpts supporting constituent 1 (dispel socialization myths). During the latter portion of the interview, questions sought to provoke feelings regarding myths or misconceptions about virtual schools. First, the participants were asked if they were aware of any myths or misconceptions on their own. Eventually, the participants were confronted with myths or misconceptions presented by the interviewer, which prompted the following responses.

Kurt: That’s a complete myth. I have a lot of friends that are my age, I get out of the house and socialize, sometimes I'll walk around, I'll go outside. We just don't sit in the house like couch potatoes, we go outside and have fun, and make friends. We don’t sit inside and do school work all day. It just makes me angry that people think that! /mu35.5. [Responding to question, do you feel you are isolated and have few chances to socialize?]

Tatyonna: It is a myth. Uhm, in the discussions we have, I, (pause) one of my best friends is in (virtual school’s name) along with me and I created this thing where old classmates from fifth and sixth grade, will talk and talk, and then some other people will come and join. Will go into like different discussions and stuff and talk to other people. We are very social /mu41.

Uhm, virtual school students are like normal students. Except that virtual students are probably more friendly, friendlier, than students in the traditional school. They (virtual school students) are already surrounded by technology, but there not shallow or rude or anything /mu43.

Jacob: That is a definite myth. Because I have a classmate who I talk to a few, and I've learned about. He lives here in (resident state). But, he lives not that far from me, like two hours away. So, I can drive there and be there in two hours. So, he is actually, thirteen years old. He's not that bad. He's a pretty good guy. Also, I learned about this other kid, he was sick and in the hospital or something, cause he got injured or something, and he likes skateboarding, uhm, he likes sharks, and a lot of things. He sounds like me,
but he does other stuff I can't do. So, I drew him a picture of what I actually think he might like /mu47.

Brianna: To be fair, I think with some students go to online school because they’re not good at socializing. Like maybe they have some, like anxiety disorder, or like so - so anxiety disorder, so like they get nervous in front of people. Because, like only the traditional school might not be only the best for people like with disorders. So maybe like they want to go to a school that is better for them /mu48.

Freya: [laughter] Yes. People think homeschooler don't get to see sunlight, or we don't get to see people. I actually go out with my friends a lot. And, I do go outside /mu43.

Discussion of constituent 1 (dispel socialization myths). All of the participants were given the opportunity to share myths or misconceptions about virtual school students generated by their own free-thinking process. Kurt was the only participant able to generate a myth or misconception. Eventually, all of the participants were confronted with virtual school myths to determine if they had a psychologically sensitive reaction. Three myths were proposed (1) virtual school students being isolated and lacking social skills, (2) virtual students learn everything at the computer all day, and (3) virtual schools being easier compared to traditional schools. In each case, the follow-up question resulted in emotionally charged responses. As an example, Kurt raised his voice and shook his head, while Freya burst out laughing. Brianna took an analytical approach to the question. She mentioned that socialization might be the reason for some students to attend the virtual school, especially for students with disorders. Tatyonna described virtual school students as being friendly, not shallow or rude. As evidence to her claim, Tatyonna created a virtual place where her old classmates and new acquaintances were able to socialize online. Jacob shared two compassionate responses. First, Jacob planned
to visit a virtual school friend living two hours away from his home when he is able to drive a vehicle. Secondly, Jacob drew a picture and sent it to a virtual student described as a “really good guy” while he was in the hospital.

Excerpts supporting constituent 2 (socialization in the home and community). As expected, all of the participants socialize in the home and community. Two of the participants mentioned church activities during interview breaks. Therefore, the mentioning of church is noted here, but does not appear in the interview transcripts.

Kurt: Uh, sometimes, I'll watch football with my family, I'll play video games with my family, sometimes I'll watch movies /mu31.

I have done school work on the way to soccer games as I have to have my school work done and soccer is important to me and sometimes soccer season can be hectic with double header games. /mu38.5

Tatyonna: Well PE is just like going to the ‘Y’ /mu12.5 ['Y' refers to community center YMCA, where socialization may occur.]

My mom was teaching, cause at the time there was five of us /mu 2.4. [Note: At the time of the interview, Tatyonna’s three siblings and mother lived in the home. All siblings were enrolled in the virtual school.]

Yes. /mu43.5. They talk about, well they are some things that I do like (traditional school), but other things, that no, I'd rather stick in (virtual school name) and stuff /mu43.6. [Responding to question, do you have friends from the traditional school and what things do they talk about?]

Jacob: Uh, once it (lesson assignment) actually told me to do a clay model of a face or something, and I did that. It was fine, I did it before. My sister (sibling’s name) did one and (second sibling’s name) did one /mu29.6. [Note: Two older siblings in the home, also enrolled in the virtual school.]

I can get done with my stuff and go outside and hangout with my friends. /mu7.
Brianna: Yeah. I usually don't. I like have cousins. But they don't ask me about school /mu47. [Responding to question, do you have friends outside of school?]

A lot of the people at my house are very talkative /mu49.5.

I made this one thing, and it turned out to be very popular. So, I got kind of got a lot of friends from that. I thought, you can be popular here, what? /mu50. [Note: Referring to an idea to create personal icons that can be dressed differently every day, with tags to say something about yourself, and a personal nickname /mu 56.]

I decided I wanted to stay (at the virtual school after moving to her current residence from out-of-state), because I was like use to it, and I have some friends choose there /mu1.

Freya: Me and my brothers want to start a band (laughter) /mu21. [Note: two older siblings live in the home and were enrolled in the virtual school.]

Discussion of constituent 2 (socialization in the home and community). Kurt socializes with his family members watching TV, movies, and playing video games together. Socialization with same age peers in the community occurred during soccer.

Tatyonna had friends in the community that attended the traditional school.

Socialization in the home included three siblings and her mother. After the interview, a tour of the basement area revealed four student stations and their mother’s work area where socialization occurred between family members. Tatyonna mentioned attending the “Y” at times for physical education where youth socialize in the community.

Jacob had two older siblings in the home. He mentioned receiving help from his siblings at times during the school day. An incentive for Jacob to complete his work is to “hangout with friends” at the end of the school day in the park or in their homes.

Brianna said she did not have many friends outside of school. Brianna did mention cousins visiting her home on occasions. The home included a live-in
grandmother, older sibling, and her mother, all being present during the school day. According to Brianna, they were all very talkative. Her older sister was enrolled in the virtual school too.

Freya had two older siblings in the home during the school day. During an interview break, Freya and her mother shared they know another virtual school student in a neighboring community. The moms are friends and visit each other at times with their children. Freya mentioned having friends outside of her home when discussing the constituent, dispel social myths.

Variant Constituents of Theme 3

The single recurrent constituent virtual school activities/opportunities were supported by Jacob, Brianna, and Freya. Participant excerpts and discussion of the variant constituent follows next.

Excerpts supporting constituent 3 (virtual school activities/opportunities). All of the participants were aware of the voluntary activities and opportunities in the virtual school. However, only three of the five participants described actual experiences in the voluntary activities. The excerpts below include actual experiences by three of the participants.

Jacob: Yeah, I think I have met them in person. But I've not actually talked to them in person. We went to a bowling alley area and all that, and super skate (an orientation activity sponsored by the virtual school). But, I never [pause], didn't speak to them or talk actually /mu48. [Responding to question, did you ever meet virtual school students?]

The teachers and all that. They put them up (voluntary activities), they put up there for us to go to. If we have, she says if we ever get another field trip like, in our area, and all that, hopefully I can meet these people in person. If
I can, that would be great /mu49. [Responding to question, who sets up the meeting for bowling and the super skate?]

Brianna: There are field trips, but I actually don't like go to them. And there is art club [unintelligible] but same thing, I don't go to it /mu39. I do get to the drama club /mu39.5. But I don't really want to be active that much, but seems pretty fun /mu40.

Right now, it’s kind of late in the year, so I don't think you can go into any clubs anymore. But you can't just go, it’s like pick the clubs you want to be in for your grade (grade level in school) /mu42.

We can do plays, like they have a script on the screen. You are there waiting. There's like hundreds of students in it. So, you may not be picked. /mu43. [Responding to question, what do you do in drama club?]

I think with clubs, they are like national /mu43.5. [Responding to question, where do the students come from?]

Yeah. There is a teacher there /mu44. [Responding to question, is there an adult, like club leader or teacher there?]

Freya: I remember like in fifth or sixth grade, I was messing around on the homepage on (name of the virtual school web site), and I found the page where you could see all the clubs and stuff /mu4.1. And I joined drama /mu4.2. And after that, I made so much friends /mu4.4.

Yes. And that's how I realized one of my friends, who also goes to (a different virtual school) … lives in (neighboring state) /mu 4.5.

I remember back in seventh grade, the last drama meeting. We were doing tongue twisters and stuff to improve articulation /mu 5.5. And then she said [pause], the teacher sent out a document filled with Dr. Seuss, articulation exercise. I was never able to get it (laughter). I still can't get it /mu6. [Responding to question, what do you do in the virtual club?]

We type to each other on the computer. There is a chat box. And, we can type to the teacher. Unless, we have a microphone, then we have the option to talk /mu7.5. [Responding to question, how do you communicate?]

Lots of numbers (laughter). There are seventy. A lot! /mu8.5. [Responding to question, how many students are present?]
Then, maybe, I haven't gone on a field trip just yet, but there a lot of field trips during the school year. There's a lot /mu44.

Discussion of constituent 3 (virtual school activities/opportunities). Jacob, Brianna, and Freya appeared to be more active in socialization with peers through teacher-led activities and opportunities. Tatyonna mentioned creating a virtual place where for her old classmates and new acquaintances visited quite frequently. In Tatyonna’s case, the voluntary socialization appeared to be self-driven rather than a formal virtual school activity. Tatyonna’s description (mu 41) was discussed with constituent 1, dispel socialization myths.

Jacob was the only participant attending an orientation field trip at a bowling alley and skating rink. Jacob did not personally greet his classmates. However, he appeared to be intrigued by others attending the orientation.

Brianna and Freya mentioned the opportunity to attend virtual school field trips and join virtual school clubs. Although Brianna and Freya have not attended field trips, they have joined the drama club. Freya mentioned meeting friends in the nationally operated drama club. Club members were from affiliated statewide virtual schools and lead by virtual school teachers.

The opportunity to socialize and meet virtual school students was voluntary. As a variant constituent, virtual school activities/opportunities suggested varying needs among the participants for socialization.

Summary of Theme 3

The participants were selective in their socialization with peers having similar interests. All participants considered themselves as being social and mingling with others
in their homes, communities, and the virtual school. Being confronted with myths about isolation and lacking social skills were denied by all of the participants. The voluntary socialization activities/opportunities at the virtual school were valued by some of the students and ignored by others. Theme 3 was related to Theme 1 due to socialization between family members in the home during the school day. However, Theme 3 dealt almost exclusively with socialization, whereas; Theme 1 structured experiences related needs of the participants, needs of family members, anxiety disorders, and a sense of belonging.

Focus on Divergent Experiences of Virtual School Experience

Two virtual school experiences were shared by only two participants. These more divergent experiences appeared to be related to the theme, teacher-directed learning at a distance and in-home parental coaching. However, there existence may belong to the individual students rather than a belonging to the theme.

Excerpts focusing on learning with peers. Tatyonna and Brianna mentioned the use of discussion boards. The other participants did not mention discussion boards. Hence, learning from peers was considered a divergent constituent.

Tatyonna: Yes. There's, in my grade now, it wasn't in there like when I was in fifth and sixth grade, but, there's this thing called discussions, where you, uhm, see, (pause) where you, okay say you did an assessment, and you have to summarize that assessment. You go to discussions and you will be like, well this is what happened, and this is what I did, and this is what I learned, and you submit it. And, then your classmates come and be like, "oh this is good, or you should do that a little bit more, or something, or uhm, you should maybe like space it out a bit, and [unintelligible] word by word, or put in a paragraph or whatever /mu26.5.

Yes, if you don't do the discussions, you don't get a good grade on it /mu27. [Responding to question, is it required that students do discussions?]
Brianna: We have all these discussions, where you have to post something, and then talk to other people, and people will talk to you /mu 33. [Responding to question, can students help each other with lessons?]

But there isn't like a group… assignments, like in regular schools /mu33.5. [Note: Students were not expected to work in groups outside of the live class sessions.]

Discussion of excerpts focusing on learning with peers. Learning with peers appeared to be optional with the possible exceptions of participating in discussion boards. The data was inconclusive as only two participants mentioned discussion boards.

According to Tatyonna, the discussion boards were required and graded by the teachers. Tatyonna explained how students interacted online doing required discussions on the LMS system. Discussions were not part of the class requirement when Tatyonna was in fifth and sixth grade. To participate in discussions, Tatyonna entered what happened, what she did, what she learned, and submitted it. Tatyonna's classmates entered into the discussion with comments, praise, or suggestions for improvement. Brianna explained that students had online discussions where they can talk and receive peer help. Brianna clarified there were no group assignments, where students must work together outside of live class sessions on the same assignment. The implication was the loss of independent learning at the student’s own individual pace.

Excerpts focusing on parent as role model. Only two participants referred to their parent(s) as role models during the interviews. These responses were not solicited from the interviewer’s questions. The role of the parent as learning coach appeared to have deeper meaning for some of the participants.

Tatyonna: Yes. I'm starting to like science and stuff /mu16. [Note: Tatyonna was asked to pick an academic subject to talk about. Tatyonna picked science since
her mother enjoys science. Tatyonna's mother shared she was receiving a degree in science during the pre-interview introductions.]

**Jacob:** Yeah. And when I graduate, when I turn eighteen, I'm working with my mom and my dad at their work /mu2. [Note: Jacob plans to be close to family members upon graduation.]

Discussion of excerpts focusing on parent as role model. These experiences appeared to be the acceptance of parents as role models when considering a future adult identity. Tatyonna recognized her mother’s interest in science. Tatyonna explained she was beginning to like science and feels she is pretty good at it. In discussing science, Tatyonna appeared to view her mother as a role model.

Jacob planned to work where his mom and dad are employed upon graduation. The prospects of being employed met Jacob’s needs for self-sufficiency and earning a living. Jacob listens to his mother about the skills needed for entry into the workplace.

**Coherent Psychological Descriptions of Virtual School Experience by Participant**

The following five paragraphs serve as a brief coherent psychological description of each participant using common jargon in the field of education. Writing a single psychological description for all five participants would neglect the rich descriptions of experience and the unique personal needs among the group members. The emphasis in writing the psychological descriptions was aimed at identifying virtual school experiences, which precisely fulfill personal needs.

**Kurt’s Coherent Psychological Description**

The virtual school experience fulfilled Kurt’s need for safety and security. Kurt’s epilepsy was triggered by photosensitive stimuli including lightning storms, camera flashes, and strobe lights. All of the triggers may be managed from Kurt’s home,
enabling regular school attendance with less fear of having an epileptic seizure. Another psychological fulfillment was the need for belonging and acceptance in school. Kurt expressed his past traditional school experience being filled with tension. The principal, teachers, and students were perceived as being mean towards Kurt. Having a public virtual school in the home resolved the school climate issue. The virtual school experience required a responsible adult as the learning coach in the home. Kurt’s mother served as the learning coach becoming the liaison between the school and Kurt as a student member. As learning coach, Kurt’s mother mediated tension between authority figures and Kurt, as he sometimes struggled with grades and keeping current in his studies. Kurt viewed his mother as the teacher and the virtual school as a facilitative resource, which contributed to a sense of self-control. With the support of his mother, Kurt attributed his success based on his own effort, rather his perception of struggling in school due to conflicts with school authority figures and distractions with classmates. According to Kurt, the “entire family is in this adventure together,” recognizing the mutual on-going health care needs of his mother, live-in grandfather and self.

Tatyonna’s Coherent Psychological Description

Tatyonna was from a private home school family. The move from private home school to public virtual school was initiated by her mother seeking support for teaching her children in the home. Tatyonna described herself as being lazy and very temperamental. Her self-proclaimed behavior was demonstrated by finding easy shortcuts in learning, which frustrated her mother as the learning coach. Tatyonna would rather use Google™ to find information than take notes. Another potential issue was
using live class time to ask questions while simultaneously completing a lesson quiz. Tatyonna’s need for self-regulation was supported by her mother as an authoritative parent, providing emotional support while gradually releasing school responsibilities from mother to child. Her mother served as a role model attending college and receiving a science degree. Tatyonna was beginning to enjoy science as a core subject and felt she was able to achieve good grades in science. The virtual school helped to fulfill Tatyonna’s need to mediate her temperamental behavior by surrounding herself with friends having similar interests. Tatyonna enjoyed visual arts and playing the piano, which were interests mostly pursued outside of school environment. [Note: Information regarding input from Tatyonna’s mother was learned outside of the formal interview and during a tour of the learning area in the home.]

Jacob’s Coherent Psychological Description

Jacob is a conscientious middle adolescent who recognized his issues with anger, reading literacy, and writing literacy. His goal is to complete school and seek independence as an adult. Jacob’s two previous attempts at traditional school enrollment were short-lived due to disruptive behavior and being a bully. In the event of disagreement or confusion, Jacob became frustrated resulting in impulsive aggressive behaviors at times. The virtual school fulfilled his need to decouple from the group learning pace and avoid personal embarrassment due to his low academic skills. The virtual school offered Jacob a slower pace and specially designed instruction. Jacob had a desire to make new friends and was cautiously making attempts at friendships at school. Although Jacob had anger problems, he demonstrated compassion by drawing a picture
and sending it to a virtual student peer in the hospital. The virtual school fulfilled Jacob’s need to slow down his instructional pace, improve his understanding of academic content, and develop relationships with others having similar interests.

Brianna’s Coherent Psychological Description

Brianna had been in private home schooling and virtual public schooling since being in Head Start. She was conscientious about her anxiety issues and wished to be understood by others. Brianna has autism and was easily distracted, which in her own words, may cause an “autistic meltdown.” The virtual school fulfilled her needs to focus and concentrate on her studies in an organized and routine manner. Brianna re-writes her daily school schedule and lesson assignments from the computer screen and posts it near her work area. The writing process helps Brianna focus on what needs to be completed that day. Brianna has a unique voice and speech impediment, which she mentioned would make a good cartoon character voice. She recognized the potential for being bullied due to her speech. Unlike her speech, Brianna claimed most people would not recognize her autism at first. Brianna has many friends from her years of being a virtual school student, fulfilling her need for socialization with same age peers.

Freya’s Coherent Psychological Description

Freya attended virtual school due to her mother placing two older siblings in the same school. Freya is in eighth grade and still misses her traditional school friends from the third grade. However, Freya had many friends in the virtual school since the fourth grade. Freya demonstrated more procedural knowledge of the required tasks, and optional school opportunities compared to the other participants. Freya claimed she had
the best of both worlds, being at home and accessing the public school. The virtual school fulfilled Freya’s need to change her instructional pace to improve her grades. Although Freya’s schooling needs were being met in the virtual school, she may return to the traditional school in the future. The implication for her tentative feelings about the virtual school may be related to being placed in the school due to the perceived needs of her siblings, rather than her own needs. Freya’s mother felt that one of her older siblings, who struggled in the traditional school, would be better off in the virtual school. In other words, there was no compelling reason for Freya to join the virtual school. Nevertheless, the virtual school was a successful school choice option for Freya, while meeting the needs of family members other than herself.

Summary of Descriptive Phenomenological Results

The five participants shared 10 invariant constituents across three common themes. The common to all constituents defined the essence, or essential structures of virtual school experience among the adolescent students attending a particular virtual school. The common themes were (1) mutual needs of participants and family members being met in the home, (2) teacher-directed learning at a distance and in-home parental coaching, and (3) socialization occurs in the home, community, and during voluntary participation in virtual school activities. Figure 9 lists the 10 common constituents used to construct an overall thematic statement of virtual school experience among the participants.

A distance learning school supported by family members, community resources, a teacher-directed curriculum and offers flexibility for independent learning.
Ten common to all constituents:

1. supportive family members present in the home,
2. needs of family members met other than the participant,
3. using the LMS system to plan completion of assignments, and access resources,
4. assessment requirements and options,
5. independent learning and flexible pacing,
6. interacting with the virtual teacher and receiving extra help,
7. depending on the parent learning coach,
8. academically challenging,
9. dispel socialization myths, and
10. socialization in the home and community.

Overall theme statement:

A distance learning school supported by family members, community resources, a teacher-directed curriculum and offers flexibility for independent learning.

Figure 9. Overall thematic statement defining the essence of virtual school experiences among the participants.

Without the common essences found on Figure 9, the virtual school experiences collapse for all participants. The essences of the virtual school experience belong to the phenomenon, rather than belonging to the participant. Conversely, the personal meanings
of virtual school experiences belong to the individual participant. The generalization of the overall thematic structure was not recommended outside of this study due to contextual differences that may be encountered. However, by reading the deep and rich descriptions from the participants, the reader may gain a better understanding of adolescent virtual school student experiences.

Summary of Descriptive Psychologically Sensitive Results

The descriptive psychological results reveal the personal meanings of virtual school experiences among five adolescent students in the study. Each participant lived through the fulfillments of their personal needs in different ways. A description of how the participants fulfilled their personal needs was presented in the section, Coherent Psychological Descriptions of Virtual School Experience by Participant. Figure 10 summarizes the psychologically sensitive needs fulfilled by the overall thematic structure by participant. See Figure 10 for psychologically sensitive terminology (in parentheses) accompanied by their attributes. The terms used on the left-side column of Figure 10 represent non-technical terms in the field of educational psychology. A higher level of abstraction was necessary to describe psychologically sensitive terminology interests in the study. Consequently, the personal meanings were partially lost when abstracting to seek common psychological interests. The psychological interests were represented by the abstract terms safety, sense of belonging, self-regulation, self-efficacy, and family affiliation. One example of abstraction of psychological interest was the term self-efficacy. Although the need for self-efficacy was relevant to each participant, the personal meaning of self-efficacy is somewhat obscure at this level of abstraction. When
the participant’s eidetic descriptions were attached to the term self-efficacy, personal meaning began to unfold. An example was Kurt’s description of control over his

<table>
<thead>
<tr>
<th>Attributes of psychologically sensitive needs by participant:</th>
<th>Overall theme statement:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kurt: photosensitive epilepsy, fear or uneasiness of the traditional school environment, and improving academic performance (<em>safety, sense of belonging, self-regulation, self-efficacy</em>)</td>
<td>A distance learning school supported by family members, community resources, a teacher-directed curriculum and offers flexibility for independent learning.</td>
</tr>
<tr>
<td>2. Tatyonna: laziness, temperamental personality, fear or uneasiness of the traditional school environment, and improving academic achievement (<em>sense of belonging, self-regulation, self-efficacy</em>)</td>
<td></td>
</tr>
<tr>
<td>3. Jacob: anger issues, impulsivity, poor literacy skills, fear or uneasiness of the traditional school environment and improving academic achievement (<em>safety, sense of belonging, self-regulation, self-efficacy</em>)</td>
<td></td>
</tr>
<tr>
<td>4. Brianna: autism disorder, speech deficiencies, and fear or uneasiness of the traditional school environment (<em>safety, sense of belonging, self-regulation, self-efficacy</em>)</td>
<td></td>
</tr>
<tr>
<td>5. Freya: support family at home and improving academic achievement (<em>family affiliation, self-regulation, self-efficacy</em>)</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 10. Psychologically sensitive needs fulfilled by the overall thematic structure by participant. Attributes were followed by the psychologically sensitive need in (*italics*).*
learning. Since being in the virtual school, Kurt stated a feeling of being more in control of his learning compared to others. When asked if he likes having more control over his learning, Kurt responded, “Not really” /mu9.7. Kurt lacked the confidence to be entirely in control of his learning. As an adolescent, Kurt’s description of self-control may be developmentally appropriate, seeking help from responsible adults, rather than relying entirely on his own abilities to complete an important task. Reading more about Kurt’s experiences revealed similar issues impacting his self-efficacy. Kurt struggled to avoid overdue work and maintaining good grades. Kurt had a strong desire to complete his work independently and believed hard work would result in better grades. Kurt stated, “well when I first started virtual school and I got my first report card, and I saw all A's and B's, I just, I ran around, I was so happy with myself, that I could get A's and B's on my first report card. I was pushing myself, and pushing, and pushing, and pushing, and pushing, and it paid off” /mu6. Kurt’s belief in hard working paying off with better grades supported his growth in self-efficacy.

In Freya’s case, the term family affiliation was used as a psychologically sensitive need. Although the argument may be made that all participants seek family affiliation, Freya was the only participant transferred from a traditional school due to the needs of an older school-age sibling. When asked what attracted Freya to the virtual school, she responded, “Because my brother wanted to be homeschooled, and I just decided I would too” /mu.05. Freya’s psychologically sensitive need was primarily for family affiliation.
In other words, what was considered to be a good school choice for one member of the family was considered good for all members of the family.

In the all other cases, the psychological need for *family affiliation* was previously met being in a home school situation or subsumed by greater needs. For example, Kurt, and Jacob’s had prominent needs related to epileptic seizure, and anger management respectively. The role of *family affiliation* was subsumed by the need for *safety*, where public school occurred in the home.

In summary, the preceding discussion provided a few examples of how the abstract terms (i.e., *safety, sense of belonging, self-regulation, self-efficacy, and family affiliation*) were used to identify psychological interests, while losing some of the unique personal meanings. However, the personal meanings were made explicit in the common themes, invariant and variant constituents, participants’ excerpts, and the *Coherent Psychological Descriptions of Virtual School Experience by Participant* described earlier in this chapter.

**Results of Research Questions 1-3**

Results from the Descriptive Phenomenological Method in Psychology (Giorgi, 2009) applied to research questions 1-3. Research questions 4-5 were reported later in Chapter IV following the results of Interpretive Phenomenological Analysis (Smith et al., 2012). Summarization of the results were necessary to reduce large volumes of data into a few sentences, that sufficiently answered each research question. The first three research questions are stated below.
1. What attracts (some) students to virtual schools?

2. Why do students continue attending or return to virtual schools?

3. What are some examples of experiences students have in virtual schools?

The following sections address research questions 1-3 using the descriptive phenomenological method.

Research Question 1

Table 22 described the results for research question 1: What attracts (some) students to the virtual school? The most compelling reasons for attraction to the virtual school were psychologically sensitive. Many of the constituents from Theme 1, mutual needs of participants and family members being met in the home were associated with reasons for attraction to the virtual school. The constituents were (1) supportive family members in the home, (2) needs of family members other than the participant, (3) avoiding anxiety disorders/issues, (4) sense of belonging. The attraction to the virtual school was related to personal needs for all participants except Freya.

Kurt had attended traditional school through the third grade. Kurt was attracted to the virtual school to mitigate potential triggers with his photosensitive epilepsy. In addition to his health related need, Kurt sought a friendlier environment compared to his traditional school experiences where he lacked a sense of belonging.

Tatyonna was in private home school through the fourth grade. Tatyonna’s attraction to the virtual school was to support her mother’s need for assistance in teaching five home school children. Another factor was Tatyonna’s perception of traditional schools being unfriendly at times based on reports from her traditional school friends.
Jacob was enrolled in the traditional school on two separate occasions in the past. The traditional school enrollments were during his early elementary years. Jacob was attracted to the virtual school as he needed a place where he could reduce his anxiety issues and tendency towards bullying. Jacob lacked a sense of belonging in the traditional school. Another reason for his attraction to the virtual school was the flexible pacing of instruction. Jacob needed a slower pace to improve his reading and writing literacies.

Table 22.

*Research Question 1: What Attracts (Some) Students to the Virtual School?*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Researcher’s Summary of Research Question 1 by Theme(s), Constituents, and Meaning Units</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt</td>
<td>Sought a way to attend school without fear of photosensitive triggers leading to epileptic seizure (T-1, C-3, mu 40.5). Dissatisfied with the lack of belonging in his prior school (T-1, C-4, mu 33.5, 34).</td>
<td>Theme 1</td>
</tr>
<tr>
<td>Tatyonna</td>
<td>Relief for mother teaching five siblings in a private homeschool. Avoid perceived issues with sense of belonging in traditional schools (T-1, C-1, mu2.5).</td>
<td>Theme 1</td>
</tr>
<tr>
<td>Jacob</td>
<td>Sought a school to avoid bullying issues and improve a sense of belonging. (T-1, C-4, mu11). Needed a slower instructional pace to learn basic literacy skills (T-1, C-2, mu8).</td>
<td>Theme 1</td>
</tr>
<tr>
<td>Brianna</td>
<td>Sought a school accommodating anxiety related to autism and speech issues (T-1, C-3, mu48.5).</td>
<td>Theme 1</td>
</tr>
<tr>
<td>Freya</td>
<td>Decided to join older siblings placed in the virtual school and maintain family cohesiveness with the school choice option. (T-1, C-2, mu.05).</td>
<td>Theme 1</td>
</tr>
</tbody>
</table>

Note: Multiple themes per participant were assigned a theme (T-1, T-2, T-3), constituents of the theme were labeled (C-1, C-2, C-3…), meaning units (mu 1- x) were aligned to the participant’s interview transcripts and written autobiographies.
Brianna has been in home school or virtual school since being in Head Start. She was attracted to public school in the home to mitigate her anxieties related to autism and speech difficulties.

In Freya’s case, there did not appear to be a personal need to leave her traditional elementary school in third grade. Freya was attracted to the virtual school for family cohesion purposes. In Freya’s case, her mother placed all three siblings in the virtual school at the same time. Freya was cooperative with her mother and thought she should “give it a try.”

In all cases, the attraction to the virtual school was psychologically sensitive to the participants personal needs and contextual factors.

Research Question 2

The data in Table 23 responded to research question 2: Why do students continue attending or return to the virtual school? Most of the rationale for continuing in the virtual school was related to Theme 1, mutual needs of participants and family members being met in the home. In many cases, the second research question determined if the reasons for attraction to the virtual school were fulfilled.

In Kurt’s case, he had an ongoing need to reduce the triggers of his photosensitive epilepsy. Another reason for his continued enrollment was flexible pacing allowing time for outside interests such as youth soccer and caring for other family members in the home.

Tatyonna’s continued enrollment related to her mother’s support system with the virtual school. Her mother sought public school assistance in home schooling her four
children. Another reason for continuing in the virtual school was related to Tatyonna’s friendships in the community. Tatyonna was able to be with friends having similar interests in the arts.

Table 23.

Research Question 2: Why Do Students Continue Attending or Return to the Virtual School?

<table>
<thead>
<tr>
<th>Participant</th>
<th>Researcher’s Summary of Research Question 2 by Theme(s), Constituents, and Meaning Units</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt</td>
<td>Able to maintain safety of medical condition for self and others in the home (T-1, C-2, mu39).</td>
<td>Theme 1</td>
</tr>
<tr>
<td>Tatyonna</td>
<td>Met her mother’s expectation for public school in the home. (T-1, C-2, mu3). Having friends in the virtual school (T-3, C1, mu41).</td>
<td>Themes 1 &amp; 3</td>
</tr>
<tr>
<td>Jacob</td>
<td>Experienced less anxiety and feels better about school. The teachers and students were perceived as being friendlier compared to past experiences. Able to take things slower to match academic abilities (T-1, C-2, mu19).</td>
<td>Theme 1</td>
</tr>
<tr>
<td>Brianna</td>
<td>Already had friends in the school. Able to work at a different instructional pace as needed to “catch-up” on work or do work in advance allowing time for outside interests (T-1, C-4, mu1).</td>
<td>Theme 1</td>
</tr>
<tr>
<td>Freya</td>
<td>Supported siblings in the home (T-1, C-2, mu.05). Able to work at a faster or slower instructional pace if needed (T-2, C-3, mu47). Valued the option to retake assessments to earn a higher grade (T-2, C-2, mu29).</td>
<td>Themes 1 &amp; 2</td>
</tr>
</tbody>
</table>

Note: Multiple themes per participant were assigned a theme (T-1, T-2, T-3), constituents of the theme were labeled (C-1, C-2, C-3...), meaning units (mu 1- x) were aligned to the participant’s interview transcripts and written autobiographies.

Jacob appreciated the flexible pacing at the virtual school reducing his frustration with learning. Another reason to continue in the virtual school was a greater sense of belonging compared to his traditional school experiences.
Brianna valued the flexible pacing of instruction and the chance to “catch-up” on schoolwork. At times, the virtual school allowed Brianna time for her outside interests.

Freya continued in the virtual school to support her older school-age siblings. All of the siblings were able to be together in the home while attending the virtual school. Another reason for Freya’s continued enrollment was flexible pacing of instruction and the option to retake assessments for a better grade.

Research Question 3

Table 24 provided examples of experiences students had in the virtual school. A more detailed account of student experiences was shared in the development of Theme 2, *socialization occurs in the home, community, and virtual school activities/opportunities.* Many of the constituents from Themes 2 and Theme 3 were developed from structural and textural questions. In other words, virtual students responded to questions of what was present, and how was it lived-though? The responses to research question 3 related to many of the constituents found in Theme 2.

Kurt shared experiences in the virtual school at remote sites in the community. Working at remote sites required an Internet connection or physical resources from the virtual school. Flexible planning for outside interests was described having benefits and pitfalls. On one hand, planning ahead and doing work in advance allowed time for outside interests, such as youth soccer. On the other hand, waiting to do schoolwork after the outside interest activity tended to add a burdensome workload. Falling too far behind in schoolwork may result in school failure, since the number of lessons in each course were static throughout the school year.
Table 24.

Research Question 3: What are Some Examples of Experiences Student Have in Virtual Schools?

<table>
<thead>
<tr>
<th>Participant</th>
<th>Researcher’s Summary of Research Question 3 by Theme(s), Constituents, and Meaning Units</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt</td>
<td>Maintaining a minimum instructional pace to avoid the accumulation of overdue schoolwork was critical to passing courses for grade advancement (T-2, C-3, μ20.5). The time available for outside interests depends on completing schoolwork in advance or completing schoolwork following the outside activity (T-3, C-2, μ28). Schoolwork may be completed at remote sites away from the home. However, planning is necessary to determine if Internet access is needed, or downloading resources to a portable computer, or use of print media (T-3, C-2, μ38.5).</td>
<td>Themes 2 &amp; 3</td>
</tr>
<tr>
<td>Tatyonna</td>
<td>During science class, the virtual teacher used a web-based learning management system (LMS) to hold live class sessions with the students at remote sites. The science teacher incorporated a PowerPoint™ presentation in the LMS to support synchronous communication with students. The teacher asked questions to determine the students’ present level of knowledge with cell nomenclature. A survey tool is used to determine the number of students answering questions correctly (T-2, C-4, μ19).</td>
<td>Theme 2</td>
</tr>
<tr>
<td>Jacob</td>
<td>Jacob was given some learning choices based on his interest in world cultures. Extended time for lesson completion was granted by the teacher, recognizing Jacob’s need to work at a slower pace (T-2, C-3, μ38.5). A mastery learning curriculum offered opportunities to re-visit lessons and retake assessments to improve the level of mastery. The option to improve mastery was particularly important for Jacob (C-2, μ43).</td>
<td>Theme 2</td>
</tr>
</tbody>
</table>

(table continues)
<table>
<thead>
<tr>
<th>Participant</th>
<th>Researcher’s Summary for Research Question 3 by Themes, Constituents and Meaning Units</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brianna</td>
<td>Virtual students may interact with their teachers during live class sessions by raising their hand using the LMS hand-raising tool, which becomes visible on the teacher and student computer screens. Another method of interacting during live class session was using the chat box to ask questions or make comments (C-4, mu22.5). Brianna stated live class sessions have several students present. The students first names appear on the teacher’s and students’ computer screens. The students may see the teacher. However, the students are not able to see each other (C-4, mu 23). The parental learning coach provided in-home guidance, encouragement, and served as a liaison between the students and school teachers (C-5, mu21.5).</td>
<td>Theme 2</td>
</tr>
<tr>
<td>Freya</td>
<td>Freya used the LMS to access her daily lesson assignments and to determine assessments due for the day. The LMS included online resources and learning tools for lesson completion. An example of a learning tool was provided, a mnemonic tool to remember English sentence structure (GUM), grammar, uses, and mechanics (T-2, C-1, mu22). At the beginning of the school year, students may join a wide variety of virtual clubs. An example of a drama club experience was practicing tongue twisters provided the virtual teacher club leader (T-3, C-3, mu 4.1, 4.2, 6).</td>
<td>Themes 2 &amp; 3</td>
</tr>
</tbody>
</table>

Note: Multiple themes per participant were assigned a theme (T-1, T-2, T-3), constituents of the theme were labeled (C-1, C-2, C-3…), meaning units (mu 1- x) were aligned to the participant’s interview transcripts and written autobiographies.

Tatyonna described the capabilities of the teacher-directed LMS. The teacher surveyed students during a live science class to determine the number of students responding to questions correctly. The virtual teacher used a PowerPoint™ slide presentation in a science lesson to learn about cell structure. Another virtual school
experience was the use of social learning, which was introduced in seventh grade using teacher-monitored discussion boards.

Jacob shared an experience where he was given choices to study various world cultures. The teacher allowed Jacob to select a country and report on their cultural celebrations. Jacob was extended extra time to research his topic and report at the next live class session. Another virtual school experience was described as an opportunity to improve mastery of learning. Jacob described repeating portions of a lesson and re-taking the assessment to improve academic grades.

Brianna shared communication tools for interaction with the teacher such as raising your hand and using a chat box during live class sessions. Another description of virtual school experience was the visual image present on computer screens during live class sessions. The students’ attendance for the live class session were listed on the screen by first name. Students were able to see the teacher during the live class session. However, the students cannot see each other. Brianna discussed another experience elaborating on the role of the learning coach. According to Brianna, the learning coach helps the students with their lessons, provides encouragement, and communicates with the virtual teachers.

Freya described experiences where she accessed her daily lessons and any assessments that might be due on a given day. Freya included the resourcefulness of the LMS offering reading passages and learning tools. Another virtual school experience was the opportunity to join special interest clubs. Freya joined drama club and described a “tongue twister” activity led by her virtual teacher.
The next section discusses the results from Smith’s et al. (2012) Interpretive Phenomenological Analysis. As mentioned at the beginning of the chapter, research questions 4-5 were analyzed using the interpretive method, which allowed the application of theory. In this study of adolescent virtual student experiences, SDT theory from Deci and Ryan (2000) was applied to examine satisfaction and dissatisfaction experiences of the participants.

Following the results from the interpretive phenomenological analysis, the researcher’s bracketing notes were presented encompassing the researcher’s decisions for the entire data analysis resulting from both phenomenological methods.

Satisfactions and Dissatisfactions of Adolescent Virtual School Students

The exploration of satisfactions and dissatisfactions were analyzed using IPA analysis. The focus of the research changed from descriptions of what it is like to experience a particular virtual school to an interpretive account of the participants’ degree of self-determination based on theory.

A list of satisfactions and dissatisfactions were developed from the second interview. Each participant was asked to read their five-day satisfaction and dissatisfaction journal to begin the interview. The interview continued with a script of semi-structured questions guided by SDT theory. The identification of satisfaction experiences was followed by dissatisfaction experiences for each participant.

Satisfactions of Adolescent Virtual School Students

The data revealed 39 satisfaction experiences among the five participants. At least three participants needed to share similar experiences to construct constituents of a
theme. Five constituents of a single common satisfaction theme were identified. The constituents represented 27 of the 39 satisfaction experiences. The common theme was *student freedoms, guided choices, and a sense of control*. The remaining 12 satisfaction experiences were shared by a minority of the participants. Of these more divergent satisfactions, only two satisfaction experiences were shared by two participants. The remaining divergent satisfactions were reported by a single participant.

**Satisfaction Theme: Student Freedoms, Guided Choices, and a Sense of Control**

Table 25 describes a common satisfaction theme identified as *student freedoms, guided choices, and a sense of control*. Common experiences were defined as occurring in three or more participants. The supporting excerpts were coded beginning with an “S” for satisfaction followed by a reference number. The coding reference designated the location of the excerpt in the interview transcript.

The common constituents shared by all participants were determined as invariant or essential to the theme. Common constituents shared by three to four participants were determined to be variant or recurrent experiences. The variant constituents were not necessary for the common theme to exist. Each of the common experiences were supported by excerpts from the interview transcripts.

**Invariant Constituents of the Common Satisfaction Theme**

Three of the five common experiences were supported by all participants (1) *knowing ahead of time what is expected to complete my school work*, (2) *having guided choices about planning my school day*, and (3) *receiving assistance from my parental learning coach*. 
Table 25.

Common Satisfaction Theme: Student Freedoms, Guided Choices, and a Sense of Control.

<table>
<thead>
<tr>
<th>Common Satisfaction Constituents</th>
<th>Kurt</th>
<th>Tatyonna</th>
<th>Jacob</th>
<th>Brianna</th>
<th>Freya</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knowing ahead of time what is expected and completing my school work.</td>
<td>S23</td>
<td>S9</td>
<td>S6</td>
<td>S9</td>
<td>S13, 16</td>
</tr>
<tr>
<td>2. Having guided choices about planning my school day.</td>
<td>S12, 13</td>
<td>S2</td>
<td>S15</td>
<td>S5</td>
<td>S3, 4, 6, 7</td>
</tr>
<tr>
<td>3. Receiving assistance from my parental learning coach.</td>
<td>S7</td>
<td>S5</td>
<td>S14</td>
<td>S10</td>
<td>S8</td>
</tr>
<tr>
<td>4. Convenience of learning in the home.</td>
<td>S20</td>
<td>S17, 19</td>
<td>S2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Immediate response from the virtual teacher.</td>
<td>S1</td>
<td>S4</td>
<td></td>
<td></td>
<td>S11</td>
</tr>
</tbody>
</table>

Note: Common satisfaction experiences were supported by three or more participants. Coding reference “S” for satisfaction followed by the reference number assigned by NVivo qualitative data analysis software, QSR International Pty Ltd. Version 11.4.

Excerpts supporting constituent 1 (knowing ahead of time what is expected to complete my schoolwork. All five participants were satisfied with knowing what was expected of them and how to complete their schoolwork with little further explanation.

Kurt: This is my paper assessment folder. I keep all my printed off stuff in here. And when I got done, my mom helped me by labeling what things are from art to science. To figure out what stuff I need to get done (S23). [Note: Respondent shared an assessment folder during the interview].

Tatyonna: Uhm, let’s see. I guess the fact that on the computer, I can do everything, like whether it is a quiz or whatever at my own pace, and if I get like a good grade, I can keep going and stuff. Even if my overall grade isn’t that bad, I can still keep going (S9).

Jacob: I know how to do my routine. I do it every day. Okay, it’s fun, it’s activity, and I get a good workout out of it. And I learn so much. So, when I move out I can be ready to move out there (S6).
Brianna: I feel like it took a while to get used to. But after a while I got it. Like I look in the student guide to see what page I read, with the other pages next, then do the quiz (S9).

Freya: Well, yes, but when I tell other people this. They’re like wow, that’s like really strict. Well, it’s not like that, it’s like simple, step-by-step.

Little chucks. [Responding to question, is it like little chunks or big?] Uh-huh. [Responding to question, little chunks of things to do?] (S13).

Uhm, at the beginning of the year. I think they do this every year. At the first lesson of art every year, you have to do a self-portrait. And, my self-portrait has always been the same. But this year, I changed it up a little bit. And, I wasn’t caught up, but I wasn’t behind, because it was the first lesson. I think I started school a bit early this year, but yeah, if that counts (S16).

Discussion of constituent 1: (knowing ahead of time what is expected to complete my schoolwork. A source of satisfaction for all participants was knowing what to expect ahead of time allowing flexible pacing. The satisfaction included the procedural knowledge to complete assessments that were linked directly to the curriculum. Supporting the constituent was the choice to retake assessments for a higher level of mastery.

Kurt brought items to the interview including an assessment folder tracking completed assignments, assignments yet to be completed, and notes from his mother to consider re-taking certain assessments. Kurt led the discussion on how his assignment folder was used to plan his schoolwork and track completion.

Tatyonna described everything she needed for her school day was on the computer. She mentioned the freedom to change her learning pace by self-monitoring her grades.
Jacob appreciated having a daily routine and knowing what to expect. Completing his routine was rewarded with time for friends at the end of the school day.

Brianna described a learning curve at first and later became confident in knowing how to plan her school day and determining when she is ready to complete the assessments.

Freya pointed out the sequential nature of lessons resulting in certainty and confidence at school. The lessons were presented step-by-step in smaller increments. The completion of schoolwork met her daily short-term goals.

Excerpts supporting constituent 2 (having guided choices about planning my school day). The five participants supported the second constituent given the following excerpts. Each participant was satisfied with the support they received from their teachers or learning coaches in making decisions to complete schoolwork when faced with options. The choices encountered by the participants were directed by the pre-loaded curriculum to be completed during the school year. Although pacing was flexible, the entire curriculum must be completed in a fixed time period.

Kurt: Some people give me choices they think I can handle (S12). [Responding to question, do you have freedom to pick and choose what to do next?]

Sometimes they do. They mostly do (S13). [Responding to question, do you think people like to give you choices sometimes?]

Tatyonna: So, Thursday, I got everything that was on my daily plan done, but my grades were still a little behind. And, my mom said we had to drop my grandma off at church. She said you could come home and do some more school and stuff the next day or during the night now. And because I was working hard all week, I wanted to spend the night that Thursday, then just do some work on Friday. You know, I’m a very lazy person when it comes to school (S2).
Jacob: Well not for me, I sometimes skip them because, I have my school to get done and overdue. It’s either do they want me to do my live lessons more or do they want me to get caught up on my school. So, I’m going to do the right thing which is do my school, get my overdue done (S15). [Responding to question, do you sometimes skip the live class sessions? Note: Jacob is a special education student with specifically designed instruction.]

Brianna: The order which I do lessons. I tend to do most of the stuff (pause), done in the morning. I usually pick math and then language arts (S5). [Responding to question, what are some ways you have freedoms?]

Freya: And yesterday, I ended up leaving the house all day. I was able to get today’s schoolwork done yesterday so I didn’t have to worry about it. Like, I spend hours on math. So, I don’t have to do it the next day. It was worth it. Because I got to play my game early (S3,4).

It’s a mixture of both. The school will tell you what you to do today, that day. And then, after you do that, you can either go back and catch up with something, you can move ahead, or you can just be done (S6,7). [Responding to question, do you guide yourself, or are you guided by others?]

Discussion of constituent 2 (having guided choices about planning my school day). Each participant was satisfied with the support they received from their teachers or learning coaches in making decisions to complete schoolwork when faced with options.

Kurt experienced more responsibility at times from the adults in his life. It appeared as a gradual release of responsibility from responsible adults to Kurt for some of his choices at school.

Tatyonna’s mother gave her a choice to stay overnight with her grandma or complete her schoolwork for the day. Tatyonna understood if she stayed with her grandma overnight she was expected to complete her school work the next day.

Jacob is a special needs student and therefore, appeared to have some choices regarding live class sessions at times. Jacob did attend live class sessions based on earlier
conversations. However, Jacob chose to skip live class sessions when he was burdened with overdue work.

Brianna had choices about the order in which school subjects would be completed. Brianna prefers completing most of her school work in the morning.

Freya described spending hours on math, so she would not have to worry about completing it the next day. Changing her instructional pace allowed Freya choices such as “catching up” on late work, working ahead of schedule, and being done with school work to focus on other interests.

**Excerpts supporting constituent 3 (receiving assistance from my parental learning coach).** All five participants supported constituent 3, considered to be essential to the common theme. Receiving assistance from the learning coach was described as completing schoolwork with support, receiving encouragement, and having guiding choices about learning options.

**Kurt:** Well, there was a day that I didn’t have the Internet and had to do a lot of school that day. So, me and my mom studied and did a lot of book work. Then when our Internet started to work again, we jumped back onto school (S7).

**Tatyonna:** That is often. Sometimes it will just come to me and, okay I get it now. I can do this. And other days it would just be like uh, what do they want me to do? And, [laughter] I laugh about it, because math for me is the hardest subject out of all the subjects I take… so, I’ll ask my mom for help... (S5). [Responding to question, was there a day last week where you felt you knew what to do and how to do it?]

**Jacob:** In the virtual school… I just sit there and mom listens to the teacher. When she rattles on about the exact same thing over again… (S14). [Note: Jacob’s mom is the learning coach and serves as a liaison between teachers and Jacob.]
Brianna: Well, often, I don’t know how to do graded assignments. So, I have to have my mom help me. And also in math class, I can’t really do it by myself. But, in math I’m pretty good at it. It’s how some of the questions are phrased. I can’t do it and I need my mom to kind of re-phrase it (S10).

Freya: Uh-huh. Yes. [Responding to question, do you need help from anyone else to go online... ?]

[Responding to questions, do you get permission from your learning coach or anybody else to work ahead?]

No (S8). [Responding to question, do you make decisions about your schedule 100% on your own?]

Discussion of constituent 3 (receiving assistance from my parental learning coach). Interaction with the learning coach was a source of satisfaction for all participants. In each case, the participants’ mothers served as the in-home parental learning coach. The learning coach roles included help with lessons, dealing with Internet issues, being a liaison with teachers, and making decisions about instructional pacing.

In Kurt’s case, he relied on his mother as learning coach to organize and complete schoolwork when the Internet was down. Tatyonna and Brianna described assistance from their moms’ as learning coaches for math lessons. Math was sometimes difficult to complete without assistance in the home. Jacob’s mom communicated with the teachers as a liaison between school and home. Freya made decisions with her mother regarding her class schedule and instructional pacing decisions.

Variant Constituents of the Common Satisfaction Theme

The last two constituents of the common satisfaction theme were variant among three of the participants. These recurrent constituents were having convenience of learning in the home, and immediate response from the virtual teacher. Although these
constituents did not appear to be essential to the overall theme, they were included as supportive structures since a majority of the participants had similar experiences.

Excerpts supporting constituent 4 (convenience of school in the home). Jacob, Brianna, and Freya expressed satisfaction with convenience of learning in the home.

Jacob: Yeah, we’re better off here in my schoolwork, where I’m in school right now. Cause, it’s actually pretty fun, it’s pretty good, you’re close to home, and I like to be close to home, cause I can be close to my bed. My bed is like right there (points to his room), I’m like, I go to sleep there. I’m like, wait, homeschool or regular school? My bed is far away from me in regular school (laughter), but homeschool my bed is right there (S20). [Responding to question, do you think other student might be better off in a virtual school compared to a traditional school?]

Brianna: We learn everything on the computer. But also, I might need to go away from the computer to read, like the history book. Because in history you learn everything from the book. You go and find a nice quiet place, which is kind of hard in my house (S17).

I mostly wear a onesie (pajamas). I like when I’m comfortable (S19). [Responding to question, what are some plusses about the virtual school?]

Freya: So, November thirtieth, It’s evening, done with school, which I find gets easier on Thursdays and Fridays. I’m guessing this was Thursday. My hair is in its normal loose ponytail. I’m now in my comfy lounge clothes. I turn on my Roku TV, flipped it to my Wii U channel and played Minecraft on my TV big screen (S2). [Note: discussion from the five-day satisfaction and dissatisfaction journal].

Discussion of constituent 4 (convenience of school in the home). The satisfactions shared by three of the participants included comfortable clothing, being able to lounge in the home, and taking breaks to enjoy favorite video games.

Jacob found humor in describing control over his learning environment. Jacob boasted that his bed was nearby. Brianna and Freya enjoyed the comforts of lounging clothes worn in the home. Another satisfaction for Brianna was finding a nice quiet place
to read her history textbook. Freya found satisfaction in breaks at home to play video games on her home big screen TV. The control of the learning environment was related to the casual conveniences of being home, rather than a discussion about ergonomic factors such as lighting, temperature control, and workspace furnishings.

Excerpts supporting constituent 5 (immediate response from the virtual teacher).

Kurt, Tatyonna and Freya described satisfactions relating to immediacy of response from their virtual teachers.

Kurt: Monday, I felt satisfied with the experience of, I had a lot of work, make-up work turned in [and] almost instantly received my grades. So, I didn’t have to work late. My teacher was present virtually because they put in my grade (S1).

Tatyonna: So, like, if I have a problem, cause there is a thing where if you raise your hand and you ask the teacher a question, but sometimes your peers or classmates will answer it for you. And a lot this week, I’ve been having some trouble with most of assignments and stuff, so I go to raise my hand, and they would answer and help me out (S4).

Freya: Okay. In English class… I was confused about what to do and what not. And my teacher was like, do you need something. Because I raised my hand. I said yeah. She said, what do you need? I’m not sure about this assessment, how to do this? I gave her a lot of things. And she told me step-by-step everything I needed to do (S11). [Note: The immediate teacher response was during a live class session with the teacher.]

Discussion of constituent 5 (immediate response from the virtual teacher). Kurt was pleased with the immediate response from his teacher grading make-up work. The immediate response meant Kurt did not need to work longer to improve his grade.

Tatyonna and Freya shared the immediacy of teacher responding to questions during live class sessions. The teachers were attentive to their needs during or immediately following class live class sessions.
Summary of the Common Satisfaction Theme

The common satisfaction theme emerged as *student freedoms, guided choices, and a sense of control*. Five constituents were identified, being shared by a majority of the participants. Of the five constituents, three were invariant defining the essence or essential structures of satisfaction. The invariant constituents were (1) *knowing ahead of time what is expected and completing my schoolwork*, (2) *having choices about planning my school day*, and (3) *receiving assistance from my learning coach*. The variant constituents were recurrent with a majority of the participants and supported the overall theme. However, the variant constituents were not considered to be essential for the theme to exist. The variant constituents were (4) *convenience of learning in the home*, and (5) *immediate response from the virtual teacher*.

The overall theme may be characterized as a gradual release of responsibility granted to the adolescent virtual students from their teachers and in-home parental learning coaches. The virtual students were faced with choices of instructional pacing, level of mastery, and planning their school day. The satisfactions included conveniences of learning in the home and opting to interact with teachers for immediate support during or after live class sessions.

Diverse Satisfaction Experiences

Diverse satisfaction experiences were supported by a minority of the participants. In other words, the satisfactions described were experienced by only one or two participants. Focus areas replaced constituents as non-thematic references. Although the focus areas did not constitute the construction if a theme, several divergent satisfactions
were revealed. Figure 11a and Figure 11b lists the divergent experiences of satisfaction by focus area and participants’ excerpts. The five focus areas identified were (1) teacher attentiveness and special support, (2) social/cultural norms, (3) individual learning preferences, (4) learning with other virtual students, and (5) supportive family members in the home.

Summary of the Diverse Satisfactions

The participants revealed divergent patterns of satisfaction, which identified five focus areas. All of the focus areas were variant structures of experience and few were recurrent among the five participants. Themes were not established as a majority of the participants were not associated with the satisfaction experiences. However, the satisfactions were meaningful to the individuals made evident by their excerpts.

The focus on teacher attentiveness and special support was a source of satisfaction for Kurt and Jacob. In Kurt’s case, he appreciated the immediate response of grading make-up work. Jacob’s satisfaction related to the teacher’s attentiveness to his literacy issues with reading and writing.

The focus on social/cultural norms was represented by Jacob, Brianna, and Freya. The focus was mostly related to future aspirations for Jacob and Brianna. Jacob was satisfied to be on a path leading to employment after high school graduation. Brianna identified that receiving a good education was important to her future. Although Brianna sometimes disliked school, she was satisfied with her education. Brianna felt the virtual school protected her from potential bullying as her speech difficulties were unusual compared to the social norm. Freya was the only participant stating she wished to be
Focus on teacher attentiveness and special support:
1. Teacher initiating contact to check on my progress.
   Kurt: (teacher’s name), she calls and checks on me, and helps my family keep me on task. She also tells me, [unintelligible] the teachers, we have to work on, and helps me if I have issues catching up, she directs me. (S3)
2. Receiving special assistance from my virtual teacher.
   Jacob: Yeah, it’s helping so far. Yeah, it’s helping. It’s really helpful so far. [Responding to question, do you think special education is helping you?] (S9)

Focus on social/cultural norms:
1. Learning to get a good job someday.
   Jacob: I don’t hate school, I don’t like it either, it’s there for me to learn. So, when I learn, I have fun. I get better, I can find my way to be a good worker. Basically, find a good job, get paid, go on a road trip, have fun, and do all that. (S22)
2. Attending school for a good education.
   Brianna: I mainly do things because I have to. It’s good for me, I do school. I don’t really want to do it, but it’s good to get that education. (S13)
3. Being compared academically to other students.
   Freya: It motivates me because usually the students are doing better than my grades. And, so I will be like, I can do better than that (laughter). (S18)
4. Easier to make friends and harder to get bullied.
   Brianna: It is harder to get bullied. I probably would have gotten bullied for my really weird speech impediment. But, I haven’t, because no one can hear my voice. (S15)

Focus on individual learning preferences:
1. Searching for information online and using screen shots.
   Tatyonna: That is, I don’t like to use notes. I just don’t. Cause I think that ... why take notes if you have a computer and stuff, and you can just go back to it and stuff. Or, you can Google™ it or whatever ... I’ll screenshot something, and I’ll go back when I need it for a quiz or whatever. She’s (mom) like, you know you shouldn’t do that. And I’m like, yeah, I know. But, I just don’t want to write anything down because I think it takes too long, that’s just me (laughter). Uhm, but again, I’m a lazy person, so I am not going to do as much, I’ll do a little bit, then I will stop. (S11-12)

Figure 11a: Diverse satisfaction experiences identifying focus areas by participants’ excerpts.
Focus on learning with other virtual students:

1. Participating in virtual clubs.
   Tatyonna: *I belong to a film-making club, uhm., a coding club, a drama club, and one more., a sketching club... my classmates that go to almost all four of the clubs, and one of my friends that goes to the (virtual school name) goes to the clubs too. And, I meet new people when I go to the clubs and stuff.* \((S17-18)\)

2. Attending optional field trips.
   Tatyonna: *Field trips. So, field trips are where, when you get to see people in your classroom and other students, you get to see them face-to-face. And, you know, there is a field trip coming up pretty soon. And you get to, well we are going to see how kaleidoscopes and stuff are made. But, last month was the pumpkin patch and the corn maze, and you got, we got to know how they make the corn maze. Uhm, with the pumpkin stuff, they had other fun like activities, like if you didn’t like going to the maze and stuff. And, the month before that we went to the apple orchard, and we got learn about apples and all that (laughter).* \((S20)\)

3. Receiving assistance from virtual classmates.
   Tatyonna: *Yes, there are sometimes where I ask my teacher for help and then there are times when I ask my other classmates for help too. So, I basically ask everybody that I can practically get to help.* \((6)\)

Focus on supportive family members in the home:

1. Receiving help with my schoolwork with family members.
   Kurt: *Tuesday I felt satisfied with everyone in the house helped me study for my unit test.* \((S3)\)
   Jacob: *Uhm, my mom and my dad. They supported me on school, and all that. But, I have other help, but I still feel supported by them. So, whenever I get done with school, I plan on working with them at work, at their job. So, I can get paid, get a car, be living around here and hangout with my family and being around them.* \((S2)\)

*Figure 11b:* Diverse satisfaction experiences identifying focus areas by participants’ excerpts.

compared to other students academically as she might learn to improve her standing in the comparison group.
The focus on *individual learning preferences* applied to Tatyonna’s self-awareness of being lazy. Tatyonna was satisfied with shortcuts in notetaking, which was not supported by her mother. Nevertheless, Tatyonna found it easier to use Google™ to search for information she needed and use the screen shot tool on her computer to avoid note-taking.

The focus on *learning with other virtual students* was supported by Tatyonna and Jacob. In Tatyonna’s case, she was satisfied with her participation in virtual clubs where she visited with friends and met new people. Tatyonna reported membership in four virtual clubs. Attending optional field trips was another source of satisfaction for Tatyonna. Her satisfaction was evident in her descriptions of experience. Another excerpt was her response to an upcoming field trip during the interview.

Yes, November 28th. Uhm, kaleidoscopes, I don’t know if you knew this, but kaleidoscopes is like a special effect, that [laughter], okay so, if there, say you have a camera, it only shows one of you. If you have like a kaleidoscope, it will show two of you, four of you, or six of you, and so on. And it will make you look really cool, so the one like it makes you have two, it will make you have a twin or something like that (S22).

Tatyonna appeared to be quite social and was eager to share her experiences during the interview.

The last focus area was *supportive family members in the home* supported by Kurt and Jacob. Both participants were satisfied with their school assistance from family members in the home. In other words, the in-home learning coach was not the only family member willing to help the participant with schoolwork.
Dissatisfactions of Adolescent Virtual School Students

The researcher identified 30 dissatisfaction experiences thought to have potential for creating themes or focus areas. None of the dissatisfaction experiences were shared by three or more students, which was the threshold necessary to establish a common or recurrent theme. Only eight of the dissatisfaction experiences were shared by two participants. The remaining 22 dissatisfactions were completely divergent. In other words, 22 dissatisfactions were not shared with any of the other participants.

The researcher decided to use a higher level of abstraction, which yielded three focus areas from the dissatisfaction experiences. See Figure 12a and Figure 12b for diverse dissatisfactions identifying focus area by participants’ excerpts. The three focus areas were supported by one or two of the participants. These focus areas were (1) constant demand to complete schoolwork, (2) difficulties in communicating with teachers or peers, and (3) virtual clubs unrelated to my interests. Focus areas represented patterns of similar dissatisfactions for a minority of the participants. Hence, the dissatisfactions experiences representing the focus areas were non-thematic.

Variant Dissatisfaction by Focus Areas

Kurt discussed the constant demand to complete schoolwork with three excerpts from his interview transcript. Two of the excerpts were comparative with the traditional school in his community. Kurt felt he needed to complete his schoolwork while he was home with an illness rather than having time off to rest. Another dissatisfaction was his sibling sometimes finished school early, while Kurt was still working to catch-up on his
Focus on constant demand to complete schoolwork:
1. Not being able to stop doing school because you are home feeling ill.
   Kurt: *I felt dissatisfied because I don’t feel well so I can’t just not do my schoolwork.* (D2)
2. When I must still do schoolwork when my traditional school sibling was finished.
   Kurt: *I felt dissatisfied that my sister gets out of school early and goes to work. I have to do work when it’s hard because I have to catch-up.* (D3)
3. The schoolwork is always there until you get it done.
   Kurt: *Well, being motivated as a virtual school is, if you have to get this done, just get it done... You just dig down real deep and bring up what you can do and get it done. That’s what really matters.* (D10).

Focus on difficulties in communicating with teachers or peers:
1. Requesting help from classmates.
   Kurt: *Not always (laughter) (D8) [Responding to question, do you want to get help from your classmates?]*
2. Requesting help from teachers.
   Kurt: *Not always (laughter) (D8) [Responding to question, do you want to get help from your teacher?]*
   Brianna: *I wish it was easier to contact teachers. Maybe, if you start your own clubs.* (D20)
3. Limitations to chat with classmates and not really knowing who is conversing:
   Brianna: *Yes. When talking to my [unintelligible]. The only way we can talk, what I like to call, under program discussions, we use the discussion board when we talk. It’s kind of hard to know who is talking to who, and kind of hard to get involved in the discussions.* (D8)
   Freya: *In (live class session’s name), I’ll start chatting with my friends, and the teacher will be like, well, I’m trying to teach, sorry but you have to keep quiet. And, we will be quiet, and afterwards we’ll start talking again.* (D2)
4. Focus on limited use of the mic in live class sessions.
   Jacob: *Uhm, no, no there ain’t. You are like really loud on the thing, you talk to someone a lot, and they, uhm, you are basically distracting the person.* (D5)
5. Wait time for teacher responses.
   Brianna: *Well some teachers are better at this than others. Usually one to three days. If it’s really bad, it’s like a week.* (D21)

Figure 12a: Diverse dissatisfaction experiences identifying focus areas by participants’ excerpts. Note: Coding Note: “D” for dissatisfaction followed by a reference number assigned by NVivo qualitative data analysis software, QSR International Pty Ltd. Version 11.4.
Focus on virtual clubs unrelated to my interests:
1. Would like clubs related to my personal interests.
   Tatyonna: *Well, you know, singing is fun and stuff. There are some people that can sing but are too shy to sing. And I think they should have a singing club that will help all those shy people that are afraid to sing, help them out and sing. You know, and be creative or whatever.* (D3)
   Brianna: *I wish it was easier to contact teachers. Maybe, if you start your own clubs.* (D20)
2. Would like to have a music club with actual performances you can be live or recorded.
   Tatyonna: *They would work. Uhm, but it would be like physical singing, it would have to be on the computer, then maybe you could see everyone at the same time. And it would have to be monthly, like once or twice per month. And, it would be like a recording, so people that didn’t get to attend, could watch it later on and practice and all that for the next.* (D5)

*Figure 12b:* Diverse dissatisfaction experiences identifying focus areas by participants’ excerpts. Note: Coding Note: “D” for dissatisfaction followed by a reference number assigned by NVivo qualitative data analysis software, QSR International Pty Ltd. Version 11.4.

schoolwork. From a more positive viewpoint, Kurt felt the priority for him was to complete his schoolwork, “that’s what really matters.”

Kurt, Brianna, Jacob, and Freya shared difficulties in communicating with teachers or peers. However, their descriptions of communication difficulties were mostly divergent. Kurt’s preference for independent learning was implicit from his transcript. The data suggested Kurt’s dissatisfaction in communicating with teachers or peers appeared to be related to slowing his instructional pace. However, Kurt’s dissatisfaction was not explicitly stated. Brianna was dissatisfied with discussion boards as she sometimes did not know the other peers in the discussion. Brianna expressed it is harder to get to know others when they are not identifiable. Sometimes, Brianna would
exchange discussion board greetings with little follow-up conversation. Freya had an experience where she chatted with friends during live class sessions, which interrupted the teacher. The teacher asked the students to stop talking and listen to the class presentation. Hence, Freya’s was dissatisfied with the limited opportunities to visit with classmates. Jacob mentioned he was not able to use the mic during live class sessions as it was too loud and would interrupt class. Using the mic might be easier for Jacob due to his poor reading and writing literacies. Another dissatisfaction from Brianna was the wait time for teachers to return grades assignments. Some teacher returned graded assignments in one to three days while others took up to a week.

Tatyonna and Brianna shared some frustrations with virtual clubs unrelated to their interests. Tatyonna expressed her interest in singing which was not supported as a club activity. A music club with actual singing performances was of interest, whereas; members could see and hear each other live or in recordings. Tatyonna would like to participate in leading a music club and help shy members to sing or be more creative. Brianna also felt students should be able to start their own clubs.

Discussion of Variant Dissatisfactions by Focus Areas

Only one participant expressed dissatisfaction with the constant demand to complete schoolwork. Although other participants felt the virtual school was demanding, their perceptions appeared to be viewed as academically challenging, which was associated with positive aspects of academic rigor and school legitimacy.

Three participants were dissatisfied at times expressing difficulties in communicating with teachers or peers. The dissatisfactions were experienced differently
among the participants. The difficulties were (1) wait time for teachers to return graded assignments, (2) wait time for returned assignments, (3) limited student use of the mic during live sessions, and (4) lack of personalization between peers using discussions boards.

Two participants were dissatisfied with virtual clubs unrelated to their interest. Both of the participants felt the teachers or school should listen more to the interests of students to form new clubs. More specifically, the dissatisfaction was not allowing students to have a voice in creating clubs and play a larger role in leading club activities.

Divergent Dissatisfaction Experiences

See Figure 13 and Figure 14 describing 16 dissatisfactions being divergent across all participants. These dissatisfactions were divided into two categories: (1) student characteristics, and (2) learning environment.

Dissatisfactions related to student characteristics. Figure 13 identified eight divergent dissatisfaction experiences related to student characteristics. The participants’ excerpts were linked to each dissatisfaction. Only one of the eight dissatisfactions were shared by two participants. Being compared to others for academic performance was a dissatisfaction shared by Kurt and Brianna. There was no evidence that the virtual school compared the students to other students as a practice between teachers and students. Hence, the performance comparison dissatisfaction was considered as a student characteristic rather than a practice found in the learning environment. The remaining dissatisfactions were divergent, not being shared with the other participants. Kurt disliked taking notes in science class and the possibility of being grounded if schoolwork
Divergent dissatisfactions related to student characteristics:

1. Being compared to others for academic performance.
   Kurt: No. (D9) [Responding to question, does being compared to other students motivate you?]
   Brianna: Yeah, I don’t like to compare myself to others, but I do like to, I do sometimes wonder what they are getting. Because, in discussion boards, some students seem to not to know the instructions and I’m like wow, I wonder if they are doing good. (D17)

2. Having to take notes in science class since we do not have a textbook.
   Kurt: I felt dissatisfied taking so many notes, because science doesn’t have a book. So, I have to write everything down, a lot of note-taking. (D4)

3. Being grounded, or not having friends over if I do not complete my schoolwork.
   Kurt: I might be grounded. [Responding to question, what kind of punishment do you think you would get?]

4. Getting in trouble at the virtual school.
   Jacob: No, but some of did, because I was having a bad time at school. I yelled, school made me mad, cause I got yelled at by the teacher cause I, was doing something I wasn’t supposed to do, which was watching videos I wasn’t supposed to be watching, like You Tube and all that. So, I was on there and wasn’t supposed to be doing that. I got in trouble with it.

5. Lacking skills for social learning and interaction with the teacher.
   Jacob: No, I don’t do that cause I, I don’t know how to use it so far, I’m still learning how to read, so yeah. Yeah. Because I can’t read so far. And people think that’s funny, you can’t read, and you’re in seventh grade. (D4, 11)

6. Not knowing what to do, feeling lost at times.
   Jacob: Uhm, yeah, once because, I was like, hey, I don’t know what to do in this. I didn’t even think my parents knew what to do. (D9)

7. Disliking math, failing to see relevance towards personal interests.
   Freya: Uhm, I don’t know if you will count this as an experience, but every day in math, I feel that way about math. Certain things in math are, the rest isn’t. In the real world, like I can see how addition, subtraction, multiplication, and division are going to help in life, but, the rest not so much. (D4, 5)

8. Dislike school in general.
   Tatyonna: To be perfectly honest? I don’t like school. No, I don’t, I don’t. (D1)

Figure 13: Divergent dissatisfaction experiences related to student characteristics linked to participants’ excerpts. Note: Coding Note: “D” for dissatisfaction followed by a reference number assigned by NVivo qualitative data analysis software, QSR International Pty Ltd. Version 11.4.
was not completed. Jacob disliked getting in trouble at the virtual school and issues with reading and writing literacies. Jacob’s poor academic skills would sometimes result in feeling lost and not knowing what to do. Freya disliked math and thought there was little relevance to her needs. Freya found math to be a difficult and confusing subject at times. Tatyonna was dissatisfied with school in general, her dislike for school did not appear to be targeted to the virtual school. Tatyonna attended private homeschool and was placed in the virtual school entering the fourth grade.

Dissatisfactions related to the learning environment. See Figure 14 for divergent dissatisfaction experiences related to the learning environment linked to participants’ excerpts. Kurt and Brianna mentioned dissatisfactions related to glitches in the LMS system, while Brianna was dissatisfied when the Internet was not operating. Jacob appeared to be dissatisfied that his teacher could monitor his screen without his knowledge. Brianna disliked when live class sessions were scheduled back-to-back stating they would be “very forgetful.” Brianna mentioned dissatisfaction with topics that were of interest but not well covered in the curriculum such as gemology and psychology. Furthermore, Brianna was dissatisfied with the chance to have input about the virtual school in general.

Summary of Variant and Divergent Dissatisfaction Experiences

Dissatisfactions were categorized into two categories (1) student characteristics and (2) learning environment. The first category, student characteristics included several dissatisfactions such as being opposed to academic comparisons, having
Other dissatisfactions related to the learning environment:

1. Frustration navigating the LMS or having glitches in the system.
   Kurt: Monday, I was frustrated because I couldn’t find a (live class session’s name) video I needed. They are by dates separately, by dates, not subject. So, you have to know the specific date, because otherwise you have to click on every single one. It is time consuming. (D1)
   Brianna: Today, I was dissatisfied with the lesson offerings were messed up. I used to be at unit one, lesson nine, but for some reason, I got placed into like, unit two, lesson seven. I didn’t even get to do my unit test. (D1)

2. Internet stops working.
   Freya: The Internet is now back and I’m hoping it doesn’t leave again. (D1)

3. Teacher is able to monitor your computer screen.
   Jacob: Whenever you are on school, apparently they know that you are on like something like, and I don’t know how they know. I’m like wondering, hey how do they know? Can they like hooking themselves up to my computer or something? (D3) [Note: Watching You Tube™ during a live class session.]

4. Having back-to-back live class sessions.
   Brianna: Today I was dissatisfied how there was uh, English (live class session name) from twelve-forty to one, because that’s a really odd time and, I had two other (live class session names), from eight to nine and nine to ten, So, two in a row, so it was very forgetful. (D4)

5. Some live sessions were not recorded.
   Brianna: Yeah. There’s also recorded lessons. But, it’s like the teacher has to do it. Often, they kind of forget to. So, if you miss a (live class session name), there is a 50% chance you miss forever and you can’t go back. (D6)

6. Few opportunities to study my personal interests.
   Brianna: And I like gemology, but if we had a unit on it, I would still be interested in it, but I still would not do the graded assignment. Like maybe a bit more, if you like doing it. I have to say. I would like it if there was something about psychology. I like psychology. I think it’s useful to know about disorders, because what if you meet someone with it? You want to understand them. Or, if you think you have it, and you want to understand it. (D12)

7. I like online school but have little input discussion about the school.
   Brianna: Whenever we hear people talk about online school, even like the students, like I kind of want to make a little replica like of online school. Because, we should talk about it more. There are some interesting things.

Figure 14: Divergent dissatisfaction experiences related to the learning environment linked to participants’ excerpts. Note: Coding Note: “D” for dissatisfaction followed by a reference number assigned by NVivo qualitative data analysis software, QSR International Pty Ltd. Version 11.4.
to take notes, being disciplined in live class sessions, disliking math, lacking literacy skills for efficient use of LMS communication tools, and disliking school in general.

Dissatisfactions with the learning environment were divergent. Only two participants mentioned issues with Internet and glitches in the LMS such as finding lessons and searching for pre-recorded live sessions. One participant disliked that teachers were able to view his screen without prior notice. Another participant shared three issues with the learning environment. First, live sessions should not be back-to-back. Secondly, some of the live sessions were not recorded, which prevented the participant from making-up missed live sessions or preventing the ability to review live sessions. And finally, the participant was dissatisfied in not having a voice in the school, such as having a student council, advisory group, or suggestion box for improvements.

**Self-Determination Descriptions by Participant**

Although the researcher analyzed 37 satisfaction experiences and 30 dissatisfaction experiences, other experiences were present in the data. Approximately 175 experiences were identified among the five participants. Many of the experiences tended to be conversations adding texture and structure to the participants’ experiential descriptions. Hence, there was some overlap in developing the descriptions of experience. In other words, only the more salient experiences thought to be useful in identifying focus areas and themes were analyzed. The next step in the interpretive analysis was identifying the level of self-determination of each participant based on SDT theory. Two components of SDT theory were explored, fulfillment of three basic needs and self-regulation experiences.
Fulfillment of Basic Needs for Competence, Autonomy and Relatedness

According to SDT theory, humans seek basic needs for (1) competence, (2) autonomy, and (3) relatedness resulting in optimal growth and satisfaction (Deci & Ryan, 2000). The application of SDT in this study was intended to improve understanding of the participants’ motivational experiences in the virtual school. A description of competence, autonomy, and relatedness were reviewed in Chapter II.

Self-Regulation Experiences

The degree of external or internal control over an individual was described in Chapter II as self-regulation. According to SDT, five levels of self-regulation exist on a continuum of behavior. The first two levels were described as externally controlled behaviors, extrinsic motivation and introjected motivation. The next two levels were described as internally controlled. These two levels of self-regulation were identified motivation and integrated motivation. These four levels represent extrinsic motivation, whereas; the individual’s goals or behaviors were derived from external sources. The highest level of self-regulation was described as intrinsic motivation, which is experienced for the sake of enjoyment. At this highest level of self-regulation, competence and autonomy must be present without any external influences (Deci & Ryan, 2000).

Random Application of SDT Theory

The virtual student experiences described in the interview transcripts and five-day satisfaction and dissatisfaction journals were coded as satisfactions or dissatisfactions. The five participants generated 115 satisfaction experiences and 60 dissatisfactions
experiences. See Table 26 for the number of satisfactions and dissatisfactions by participant. A complete SDT analysis of all satisfactions and dissatisfactions was beyond the scope of the research questions 4 and 5, which read as follows:

4. What are some examples of student satisfaction in a virtual school setting?
5. What are some examples of student dissatisfaction or frustration in a virtual school setting?

Due to the large number of satisfaction/dissatisfaction experiences found in this study, a single satisfaction experience and a single dissatisfaction experience was randomly selected for SDT analysis by participant. See Table 26 for the random selection of five satisfactions and five dissatisfactions across all participants.

Table 26

*Total Number of Satisfaction Experiences and Dissatisfaction Experiences of Virtual School Experience by Participant Including Random Selection Number for SDT Analysis.*

<table>
<thead>
<tr>
<th></th>
<th>Kurt</th>
<th>Tatyonna</th>
<th>Jacob</th>
<th>Brianna</th>
<th>Freya</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Satisfactions Random Selection No.</td>
<td>28 (No. 7)</td>
<td>23 (No. 6)</td>
<td>24 (No. 11)</td>
<td>19 (No. 3)</td>
<td>21 (No. 15)</td>
</tr>
<tr>
<td>No. of Dissatisfactions Random Selection No.</td>
<td>10 (No. 3)</td>
<td>6 (No. 6)</td>
<td>17 (No. 9)</td>
<td>22 (No. 7)</td>
<td>5 (No. 4)</td>
</tr>
</tbody>
</table>

Note: Random numbers were generated online using [https://www.random.org/sequences/](https://www.random.org/sequences/). Reference number were generated using reference codes assigned by NVivo qualitative data analysis software, QSR International Pty Ltd. Version 11.4.

Based on SDT theory, the data analysis was twofold: (1) what were some of the satisfactions or dissatisfactions related to the three basic human needs, and (2) how were
the satisfactions and dissatisfactions self-regulated by the participants? The results of the 
analysis were presented by participant in the following sections.

Kurt’s self-determination for the satisfaction of working with his learning coach. Kurt 
faced a dilemma when his Internet was not operating according to his five-day 
satisfactions and dissatisfactions journal. Kurt did not express if the temporary absence 
of the Internet was a source of satisfaction or dissatisfaction. However, Kurt 
demonstrated an adaptive behavior for an optimal outcome. Kurt worked with his mother 
to complete book work.

Kurt: Well, there was a day that I didn’t have the Internet and had to do a lot of 
school that day. So, me and my mom studied and did a lot of book work. 
Then when our Internet started to work again, we jumped back onto school.

In this instance, Kurt demonstrated extrinsic motivation with external support from his 
mother. A need for competence was met as he needed to complete school tasks. The 
need for relatedness was served from a supportive family member working with Kurt to 
complete offline school tasks. Autonomy was deprived by the absence of the Internet. 
Once the Internet started working again, Kurt had the opportunity practice autonomy by 
choosing to complete schoolwork online. The data suggest Kurt’s self-regulation was 
internally controlled with the support of his mother to complete offline schoolwork. The 
extrinsic and introjected levels of self-regulation did not appear to be present since 
external influences such as punishment, rewards, and avoiding disappointment from 
others were not apparent. The integrated level of self-regulation was not supported since 
Kurt’s mother appeared to be a necessary to work offline. Hence, Kurt’s level of self-
regulation was identified, as Kurt recognized the importance of competing schoolwork and was satisfied with the support from his mother as the parental learning coach.

Kurt’s self-determination for the dissatisfaction of comparing traditional school hours with virtual school hours. Kurt has an older sister attending the traditional school in his community. There have been times during the school year where Kurt’s sibling completed her school day before Kurt was finished with his school day. There appeared to be a sense of jealousy when Kurt was still working at his schoolwork while his sister had finished for the day.

Kurt: I felt dissatisfied that my sister gets out of school early and goes to work. I have to do work when it’s hard, because I have to catch-up.

Kurt’s dissatisfaction was externally controlled by the traditional school district’s dismissal time. There were no dismissal times in the virtual school. Kurt perceived his sister was free from school while Kurt had to keep doing his schoolwork. Kurt’s need for autonomy was maintained regardless of comparing traditional school hours with virtual school hours. However, Kurt was dissatisfied as he pushed himself to keep working at his schoolwork. Kurt’s need for competence was met since he understood how to complete his schoolwork. Relatedness did not appear to be acting on Kurt’s behavior. It is likely that relatedness needs were met as Kurt was surrounded with supportive family members in the home. From a self-regulation standpoint, Kurt understood the importance of completing his schoolwork. The reason given was to catch-up on schoolwork, rather than more external forces such as to avoiding punishment, receiving a reward, or gaining temporary self-worth by avoiding disappointment from others. Kurt’s self-regulation was more internally controlled compared to being externally controlled; he understood the
importance of completing his schoolwork. Therefore, the identified level of self-
regulation fits Kurt’s motivation.

Tatyonna’s self-determination for the satisfaction of participating in virtual clubs. A randomly selected satisfaction from Tatyonna was her participation in virtual school clubs. Tatyonna belonged to a film-making club, coding club, drama club, and sketching club. Many of her classmates attended the clubs along with new members. Tatyonna enjoyed visiting with her friends and meeting new people in the virtual clubs. When asked about plusses in the virtual school, Tatyonna mentioned virtual clubs.

Tatyonna: Uh, plusses, maybe they have like online virtual clubs that you can go to. So, people or students that normally are not seen in like (live class sessions’ name) with your students, or not students, peers. Uhm, get to know them, cause you will like to see some of your classmates and then you will see some other people that haven’t seen in a while or something. Then have a great time and all. [laughter]

Tatyonna’s need for competence related to her interests were being met in the virtual clubs she mentioned. The virtual clubs were not required of virtual students. Tatyonna’s choose to participate, which met her need for autonomy. The interaction with past classmates and meeting new people served the need for relatedness, especially in sharing similar interests. From a self-regulation standpoint, Tatyonna was operating at the integrated level, which was described as accepting values and identity of the group with one’s own values. The integrated level of self-regulation is the most internalized level of extrinsic motivation. Although, the intrinsic level of self-regulation may be argued as being present, the standard of separable outcomes was not evident in the transcript. In other words, the outcome of being with friends was not separable for the behavior to occur. An example might be “coding club,” where Tatyonna enjoyed the activities of
coding with club members yet might not perform coding activities alone. To be integrated self-regulation, Tatyonna would spend time doing coding alone for the joy of coding, similar to doing crossword puzzles, picture puzzles, or playing a game of solitaire without others present.

**Tatyonna’s self-determination for the dissatisfaction of not having a student-led performing arts club.** Tatyonna loves to play the piano and sing. When asked what she wished her virtual school would do differently, Tatyonna mentioned having a club where students may sing or play music instruments. According to Tatyonna, a challenge would be encouraging shy people to perform and building their confidence. Another challenge would be to use the computer’s capabilities to see everyone simultaneously and practice once or twice per month. To some extent, Tatyonna believed students could lead the club meetings to inspire their peers.

Tatyonna: Yes, because I’m a shy person. And so, this -- I call it a charm, it might be called something else, I have this charm to [pause], making people feel comfortable around me and open up and stuff. So, I think it would be pretty easy for me get super shy person to, you know, sing and stuff.

Tatyonna’s needs for competence, autonomy, and relatedness were not fulfilled in her desire for a student-led performing arts club. According to Tatyonna, the club would feature the individual talents of students to sing and play instruments online. Furthermore, the club would make a special effort to build confidence for shy students. Tatyonna’s descriptions of the desired experience suggests *integrated* self-regulation. At the integrated level, individuals act on what they accept as being important, interesting, and experience cohesiveness with personal values. The integrated level of self-regulation seeks acceptance from the social group and norms of expected behaviors.
Jacob’s self-determination for the satisfaction of receiving a reward for completion of virtual schoolwork. Receiving special treats at home for completion of virtual schoolwork was a motivator for Jacob. An example would be eating some of his favorite foods.

Jacob: My mom says if I do this, I can have basically food. It was basically, the food we are having is the food I like, it’s sloppy joes, or lasagna, pizza, or hot dogs. Mom’s like, you can have your food if you get this done. I’m like, dang it [with smiling expression]!

Jacob’s excerpt was evident of a short-term, externally controlled reward for completing his schoolwork. Hence, the level of self-regulation was extrinsic. Jacob was fed regardless of schoolwork completion. Hence, the extrinsic motivation was not to avoid a punishment. In terms of meeting needs for competence, Jacob attended to his school lessons and processes necessary for completion. Autonomy needs related to making good choices in school resulting in completion of schoolwork. Jacob’s relatedness needs recognized his mother’s support and encouragement for completion of schoolwork. Without external support, Jacob might thwart schoolwork completion due to self-esteem issues.

Jacob’s self-determination for the dissatisfaction of missing some fun times in his former traditional school. Jacob responded to a question, would you consider returning to the traditional school? His verbal response lacked some coherency. However, a sense of belonging appeared to be unfulfilled in recalling his traditional elementary school experience.

Jacob: No. If, I actually do go back to traditional school, I would like to go back to (name of school). I would be a high school student, hey this is a good school, it was fun, I had great teachers, they taught me really well, that was
my calm, basically I was calm, but then I lost my cool there. But, it was a fun place, I hanged out, I met some good people. But, I don’t know where those people are now. [Note: The response begins with a “no” in reply to a question asking Jacob if he would consider returning to the traditional school in the future.]

Jacob’s dissatisfaction was interpreted as missing the fun parts of his traditional school life. Although Jacob stated he would not return to traditional school, he appeared to miss the teachers, and some good people he met. Reviewing the entire transcript was necessary to understand what was meant by his statement “but then I lost my cool there.” Jacob was unable to meet his needs for competence, autonomy, and relatedness in the traditional school. According to portions of the transcript, Jacob was removed twice from the traditional elementary school for bullying. Another issue was his frustration with learning. Jacob’s poor literacy skills and impulsive-disruptive behaviors resulted in chronic disciplinary actions at a young age. During the interview, Jacob recognized he was not well-suited for the traditional school. From a self-regulation standpoint, Jacob’s current school placement was externally controlled from his parents opting for the virtual school. Jacob agreed with his virtual school placement and would not go back to traditional school according to his excerpt. Jacob demonstrated identified self-regulation in accepting his current school placement as an important step in graduating from high school in the future. Jacob’s decision appeared to be stable regardless of some positive memories and missing people from his former traditional school experience.

Brianna’s self-determination for the satisfaction of learning as adaptive process. Brianna autism may have influenced her response to a scenario provided during the interview. The conversation was meant to describe identified regulation. The scenario
given by the researcher follows, *exercising and eating are well known to be good for the body. However, some people do not make a habit of exercising regularly or eating well, even if they know these things were important for good health.* Brianna was asked if she acted on doing things in school because they were important, but not necessarily because she desired doing the activity?

Brianna: I think that’s my motivation with most things. I got this philosophy where nothing is important, but like everything is important. Kind of weird. In reading the transcript, a subsequent statement was necessary to interpret the satisfaction experience. Brianna stated, “I mainly do things because I have to. It’s good for me, I do school. I don’t really want to do it, but it’s good to get that education.” With this additional information, Brianna demonstrated interest in a good education, regardless if she believed the lessons were interesting or personally important. Brianna’s need for competence was met through her willingness to complete interesting and uninteresting schoolwork. Relatedness appeared to be present in accepting school norms and rules. Autonomy needs related to making good choices to complete all schoolwork. Brianna’s *identified* self-regulation was due to her nonchalant attitude of “nothing is important, but like everything is important.” In other words, Brianna identified with the importance of school regardless if her personal interests were satisfied. It appeared that Brianna may be using her care-free attitude as a coping mechanism to reduce anxiety.

Brianna’s self-determination for the dissatisfaction of glitches in the LMS system. A dissatisfaction expressed by Brianna was glitches in the LMS system. Brianna was unable to load art lessons on her computer in the past causing frustration.
Brianna: The art lessons were kind of messed up, and somedays the loading is kind of weird and you can’t even get into school. I think it’s because it’s kind of a new school. And there trying to figure out the system. So, there’s some glitches.

Brianna was not able to address her needs for competence since the glitches must be fixed by virtual school’s teachers or technicians. Brianna stated, you could contact the teachers but there may not be a lot they can do about it.” Based on her comment, autonomy needs were temporarily unfulfilled as she was unable to fix the problems herself. Relatedness appeared to have a minor role of being patient with others while the system was not working properly. In terms of self-regulation, fixes to the LMS were externally controlled. More reading of the transcript was necessary to determine the level of self-regulation. Brianna stated, “Well, if the situation comes to where you can’t get into school, usually you go into the computer and try, and it will be better tomorrow.” From Brianna’s comment, extrinsic and introjected regulations were ruled out since her behavior was not to avoid punishment, receive a reward, or to avoid disappointing others. The best fit for self-regulation was the identified level since patience was important to cope with the temporary issue. Brianna expressed she would try to load her art lessons at a later time as the glitches were usually fixed over time.

Freya’s self-determination for the satisfaction of earning good grades allowing time with friends. Freya and her virtual school friend Tamara (fictitious name) live near each other providing the opportunity for them to meet face-to-face at times. The convenience of meeting together stemmed from a friendship between Freya’s mom and Tamara’s mom. When Freya’s mom would visit with Tamara’s mother, Freya would ask to go along to see Tamara. Freya’s mother would bring Freya to the family friend’s
home on the condition of receiving good grades in the virtual school. During the interview, Freya was asked, do you ever have virtual school experiences where you might be punished or receive a reward for doing something? Freya mentioned, “there’s quite a few.” The next excerpt was given by Freya relating good grades as a reward.

Freya: And then, you have to get good grades in order to go to Tamara’s (fictitious name) house.

The above excerpt was randomly selected as a satisfaction. Freya was satisfied in visiting her virtual school friend face-to-face. The satisfaction was externally controlled by her mother on the condition of receiving good grades. The need for competence was met when Freya maintained good grades in school. Autonomy needs were related to making choices in school to earn good grades. Relatedness needs were satisfied when face-to-face visits occurred between Freya and her virtual school friend. In terms of self-regulation, Freya’s motivation was extrinsic as she was rewarded with visiting her friend’s home based on having good grades in school.

Freya’s self-determination for the dissatisfaction of completing difficult math problems and failing to see personal relevance. During the interview, Freya was asked if she did something in the virtual school because she knew it was important, especially to others. Others might have been her mother or a teacher. In this scenario, Freya was asked if she ever had an experience she disliked, but would complete the task because it was important?

Freya: Uhm, I don’t know if you will count this as an experience, but every day in math, I feel that way about math.
During the discussion of the randomly selected excerpt, Freya mentioned math as being a disliked subject. Freya stated, “I’m not going to lie. I hate it. Uhm, its hard. It doesn’t make any sense.” When asked if she knew the topic she was doing in math, Freya responded, “Yeah, it’s called slopes.” Freya’s next response provided the information needed to analyze her response based on SDT theory. Freya was asked, do you think math is important?

Freya: Certain things in math are, the rest isn’t. In the real world, like I can see how addition, subtraction, multiplication, and division are going to help in life. But, the rest not so much.

Based on Hanna’s conversation during the interview, the following observations were made. First, some topics in math were considered important to Freya. These topics were basic math functions (i.e., addition, subtraction, multiplication, and division). Secondly, math topics related to geometry, such as finding angles or slopes were confusing to Freya. Furthermore, Freya did not believe there were any practical applications for using geometric math in the future. Examining the entire transcript revealed Freya would work extra hours on math to improve her grade.

Freya: Yes, I’m not sure which day it was, but it was sometime last week. And, it was, I forgot what they call it, it’s like a catch-up day or a work ahead day in math. And, I chose to go back and do an assessment again. And, I got a better grade on it.

From a dissatisfaction standpoint, Freya disliked math, especially since it was difficult and not considered as being applicable to her current needs. However, Freya would spend extra time on math to improve her grades. Reviewing her comments based on SDT theory revealed difficulties with meeting basic innate needs. With extra time and effort Freya’s competence needs were fulfilled. Autonomy needs to make good choices were
fulfilled with the support of extra time built into the week specifically for math. Freya mentioned “catch-up day” in math where she elected to retake an assessment resulting in a better grade. Relatedness for basic math functions appeared to be fulfilled for their utility in society. However, relatedness needs for more complicated math problems appeared to be unmet without support from her ambient social group (i.e., teacher and classmates). Examples of relatedness support might be fun activities with classmates using slopes and angles to make a paper airplane, cut out a paper sewing project, build a puzzle, etc. From a regulation standpoint, Freya’s persistence was evident of identified self-regulation.

Results of Research Questions 4-5

The application of Interpretive Phenomenological Analysis (Smith et al., 2012) was administered to answer research questions 4-5. A summary of the findings was organized by each research question.

4. What are some examples of student satisfaction in a virtual school setting?

5. What are some examples of student dissatisfactions or frustrations in a virtual school setting?

Some Experiences of Satisfaction in the Virtual School Setting

In addressing research question 4, the data revealed 39 satisfaction experiences among the five participants. A common satisfaction theme was established from three or more participants sharing similar experiences. The theme was identified as student freedoms, guided choices, and a sense of control. See Table 27 for examples of some
experiences of virtual school students based on the common satisfaction theme and constituent structures.

Table 27

*Research Question 4: What are Some Examples of Student Satisfactions in a Virtual School Setting?*

<table>
<thead>
<tr>
<th>Constituents:</th>
<th>Summary of Satisfaction Experiences (paraphrased)</th>
</tr>
</thead>
</table>
| 1. Knowing ahead of time what is expected and completing my schoolwork. | Kurt: *I know in advance what needs to get done.*  
Tatyonna: *I can determine my own pace.*  
Jacob: *I know my routine.*  
Brianna: *I can use the student guide to see what to do next.*  
| 2. Having choices about planning my school day. | Kurt: *Some people give me choices they think I can handle.*  
Tatyonna: *Flexibility to change my schedule for family events.*  
Jacob: *Freedom to spend more time on overdue work.*  
Brianna: *I like to do most of my schoolwork in the morning.*  
Freya: *Working ahead so I can have time away from school.* |
| 3. Receiving assistance from my learning coach. | Kurt: *My mom helps me with my schoolwork.*  
Tatyonna: *I ask my mom for help with hard subjects.*  
Jacob: *My mom discusses my schoolwork with the teachers.*  
Brianna: *My mom helps me by re-phrasing math problems.*  
Freya: *My mom lets me know if I can work ahead.* |
| 4. Convenience of learning in the home. | Jacob: *I’m close to home, close to my bed.*  
Brianna: *When I find a quiet place to read my history book.*  
Freya: *I can wear comfy lounge clothes.* |
| 5. Immediate response from the virtual teacher. | Kurt: *My make-up work was graded quickly.*  
Tatyonna: *I can raise my hand in live sessions for teacher help.*  
Freya: *I raised my hand in class and the teacher helped me.* |

Note: The virtual student satisfaction experiences were selected from the common satisfaction theme: *Student freedoms, guided choices, and a sense of control.*
Interpretations of Satisfaction Experiences Based on SDT Theory

Table 28 presented interpretations of satisfaction experiences based on SDT theory. The satisfaction experiences were randomly selected and presented earlier in Table 26. Two components of SDT theory were applied to each participant. First, Table 28 each satisfaction experience was reviewed to determine if basic needs for competence, autonomy, and relatedness were being met. Secondly, the satisfaction was considered to be the successful completion of schoolwork, being able to navigate the LMS, and attending to processes associated with student policy and student handbook requirements. Autonomy was considered to be freedom of choices about schoolwork completion, pacing of instruction, re-taking assessments, and participating in optional activities. Relatedness was considered to be socialization and caring acceptance from others such as the teachers, learning coach, virtual peers, personal friends, and family members.

In all cases, the needs for competence and relatedness were being fulfilled. Autonomy fulfillments were present in all participants with the exception of Kurt’s Internet outage experience. In Kurt’s case, the freedom and choice of to complete work online was disrupted temporarily due to an Internet outage. However, Kurt’s autonomy was partially fulfilled with the choice of completing offline schoolwork. The self-regulations among the participants varied. Jacob, and Freya exhibited extrinsic self-regulation for their experiences of receiving rewards for successful completion of schoolwork. Kurt and Brianna were self-regulated at the identified level. In Kurt’s case,
Table 28

*Interpretations of Randomly Selected Satisfaction Experiences Based on SDT Theory.*

<table>
<thead>
<tr>
<th>Description of satisfaction experiences by participant:</th>
<th>Fulfillments of basic needs for: competence, autonomy, and relatedness.</th>
<th>Self-regulation level: extrinsic, introjected, identified, integrated, or intrinsic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt - Receiving help from mom as learning coach when the Internet was down.</td>
<td>Competence was met with external support to complete offline schoolwork. Autonomy needs were somewhat deprived due to the Internet outage. Relatedness needs were met with a supportive parent.</td>
<td>Identified self-regulation acting on importance of completing schoolwork despite a temporary Internet outage.</td>
</tr>
<tr>
<td>Tatyonna – Participation in four different virtual clubs of interest.</td>
<td>Competence needs related to interests were met. The need for autonomy was met due to voluntary participation. Relatedness needs were met by the supportive club members.</td>
<td>Integrated self-regulation recognizing personal value of club-related competencies and acceptance of the social norms of the clubs.</td>
</tr>
<tr>
<td>Jacob – Receiving special food treats from my mom for completing schoolwork.</td>
<td>Competence needs were met with the completion of schoolwork. Autonomy needs to make good choices in completion of schoolwork was met with food choice incentives. The need for relatedness was met from a caring adult.</td>
<td>Extrinsic self-regulation due to rewards, which were externally controlled.</td>
</tr>
<tr>
<td>Brianna – Not liking school at times, while recognizing the importance of receiving an education.</td>
<td>Competence needs were met by valuing a good education and completing schoolwork. Autonomy needs were met as Brianna made good choices to complete schoolwork regardless of her personal learning interests. Relatedness needs were met with acceptance of school norms.</td>
<td>Identified self-regulation was evident from valuing school for a good education despite disliking school at times.</td>
</tr>
</tbody>
</table>

(table continues)
### Description of satisfaction experiences by participant:

<table>
<thead>
<tr>
<th>Fulfillments of basic needs for:</th>
<th>Self-regulation level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>competence, autonomy, and relatedness.</td>
<td>extrinsic, introjected, identified, integrated, or intrinsic.</td>
</tr>
</tbody>
</table>

| Freya – Being able to visit in a family friend’s home with a virtual peer contingent upon receiving good grades in school. | Competence needs were met when earning good grades in school. Autonomy needs were met with the incentive to visit a virtual peer member in her home. Relatedness needs were met given the opportunity to spend time with a peer having similar interests and school experiences. | Extrinsic level of regulation due to the reward of visiting a peer and other family friends in their home. |

He experienced the importance of completing schoolwork despite the temporary Internet outage. Brianna experience of disliking schoolwork at times was overshadowed by the importance of receiving a good education, which was interpreted as identified self-regulation. Tatyonna demonstrated a higher level of self-regulation in her randomly selected experience. Tatyonna voluntarily attended four different virtual school clubs. In Tatyonna’s experience, integrated self-regulation was demonstrated due to the values of the ambient social group being personally valued by the participant. None of the participants exhibited introjected or intrinsic levels of self-regulation from the small sample of satisfaction experiences.

### Some Experiences of Dissatisfactions in the Virtual School Setting

Research question 5 was addressed in Table 29 with some of the dissatisfaction experiences among the five participants. Unlike the satisfaction experiences, most of the
Research Question 5: What are Some Examples of Student Dissatisfaction or Frustration in a Virtual School Setting?

<table>
<thead>
<tr>
<th>Constituents:</th>
<th>Summary of Dissatisfaction Experiences (paraphrased)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on constant demand to complete schoolwork.</td>
<td>Kurt: <em>I can’t go home sick from school.</em>&lt;br&gt;Kurt: <em>I have to work while traditional school is dismissed.</em>&lt;br&gt;Kurt: <em>The school work is always there needing to get done.</em></td>
</tr>
<tr>
<td>Focus on difficulties in communicating with teachers and peers.</td>
<td>Kurt: <em>Interacting with virtual teachers can be difficult.</em>&lt;br&gt;Kurt: <em>Interacting with virtual peers can be difficult.</em>&lt;br&gt;Brianna: <em>I wish it was easier to contact my teachers.</em>&lt;br&gt;Brianna: <em>Not knowing who you are conversing with online.</em>&lt;br&gt;Brianna: <em>Waiting for teachers to return graded assignments.</em>&lt;br&gt;Jacob: <em>Not allowed to use the mic in class sessions.</em>&lt;br&gt;Freya: <em>Having few opportunities to chat socially with peers.</em></td>
</tr>
<tr>
<td>Focus on virtual clubs unrelated to my interests.</td>
<td>Tatyonna: <em>Not having a virtual singing club</em>&lt;br&gt;Tatyonna: <em>Not having virtual singing performances.</em>&lt;br&gt;Brianna: <em>Not being able to start your own club.</em></td>
</tr>
<tr>
<td>Non-focus area of divergent dissatisfactions.</td>
<td>Kurt: <em>Do not like being compared academically to others.</em>&lt;br&gt;Kurt: <em>Taking class notes rather than reading a text book.</em>&lt;br&gt;Kurt: <em>Being grounded if I don’t complete my schoolwork.</em>&lt;br&gt;Jacob: <em>Getting in trouble watching You Tube™ during class.</em>&lt;br&gt;Jacob: <em>Not being able to read well compared to classmates.</em>&lt;br&gt;Jacob: <em>Feeling lost or confused with some lessons.</em>&lt;br&gt;Brianna: <em>Not liking academic comparisons with others.</em>&lt;br&gt;Freya: <em>Not finding relevance with difficult math problems.</em>&lt;br&gt;Tatyonna: <em>Disliking school in general.</em></td>
</tr>
</tbody>
</table>

Note: The virtual student dissatisfaction experiences were selected from Figure 12a, Figure 12b, and Figure 13.

dissatisfaction experiences were divergent. The diversity of dissatisfactions was evident insomuch as only 8 of the 30 dissatisfaction experiences were shared by two participants. The remaining 22 dissatisfactions were not shared among the participants. Therefore, a dissatisfaction theme was not supported for the study group. However, using a higher level of abstraction resulted in three focus areas related to dissatisfactions, constant
demand to complete schoolwork, difficulties in communicating with teachers and peers, and virtual clubs unrelated to my interest. These focus areas were presented earlier on Figure 12a and Figure 12b. The more divergent dissatisfactions were presented on Figure 13. The data from Figure 12a, Figure 12b, and Figure 13 were condensed on Table 29 to answer research question five. See Table 29 for dissatisfaction experiences summarized by the three focus areas, and one non-focus area being the more divergent dissatisfactions.

Interpretations of Dissatisfaction Experiences Based on SDT Theory

The application of SDT theory was applied to five randomly selected dissatisfaction experiences identified earlier on Table 26. The application of SDT was applied in the same way compared to the satisfaction experiences. See Table 30 for interpretations of randomly selected dissatisfaction experiences based on SDT theory.

The same standards for competence, autonomy, and relatedness were applied from the interpretations of satisfaction experiences reported earlier. In all cases the needs for competence and autonomy were met with the temporary exception for Brianna. In Brianna’s case, she was dissatisfied with glitches in the LMS system. From a competence perspective, Brianna was not able to navigate the LMS and complete assigned work. Likewise, Brianna’s instructional choices were hampered reducing autonomy. However, competence and autonomy were restored shortly thereafter once the glitches were no longer an issue. Relatedness needs were met by all participants with the exception of Freya. In Freya’s case, she lacked the support needed to find relevance
<table>
<thead>
<tr>
<th>Description of dissatisfaction experiences by participant:</th>
<th>Fulfillments of basic needs for: competence, autonomy, and relatedness.</th>
<th>Self-regulation level: extrinsic, introjected, identified, integrated, or intrinsic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt - <em>Comparing traditional school hours with virtual school hours. My sister came home from traditional school and I need to catch-up on schoolwork.</em></td>
<td>Competence needs were met as Kurt continued schoolwork past the traditional school hours. Autonomy needs were met as Kurt chose to continue working. Relatedness needs were met with supportive family members in the home.</td>
<td>Identified self-regulation was demonstrated as Kurt knew completing his school work was important despite his desire to be finished with school like his sibling.</td>
</tr>
<tr>
<td>Tatyonna – Lack of student-led performing arts club.</td>
<td>Competence needs were met through interesting learning activities. Autonomy needs were met since the school clubs were voluntary student activities. Relatedness needs were met with socialization of classmates and meeting new people with similar interests.</td>
<td>Tatyonna exhibited integrated self-regulation due to the club values and activities aligning well with her personal values and interests. A major factor driving her motivation was socialization with club members.</td>
</tr>
<tr>
<td>Jacob – <em>Missing some fun times in his former traditional school.</em></td>
<td>Competence needs to navigate the school environment and complete expected tasks were met in the virtual school. Autonomy needs were met as Jacob preferred the virtual school despite missing some aspects of the traditional school. Relatedness needs were an issue in the traditional school and appeared to be well-adapted in the home setting.</td>
<td>Jacob’s level of self-regulation appeared to be identified as he is aware of the importance of his current school choice to reduce anxiety. Jacob acknowledged issues in the traditional school resulting in anxiety and anger.</td>
</tr>
</tbody>
</table>

(table continues)
Description of dissatisfaction experiences by participant:  

| Brianna – *Glitches in the LMS system.* | Competence needs were hampered by temporary glitches in the LMS system. Autonomy needs to make choices to complete schoolwork were temporarily deprived. Relatedness appeared to be confidence in school officials’ abilities to fix the problem. | Brianna’s self-regulation level was identified as the importance of school was not diminished with temporary glitches in the LMS system. |
| Freya – *Completing difficult math problems and failing to see personal relevance.* | Competence needs were met as Freya would take more time if needed to complete math assignments. Autonomy needs were fulfilled exercising the decision to work extra hours if necessary. Relatedness needs were partially fulfilled as Freya believed certain math skills were necessary to function in society. However, relatedness appeared to be an issue in failing to find relevance in her life for the math problems she was encountering at school. | Freya’s identified self-regulation level stemmed from her acknowledgement that certain math skills were important. Freya perceived the more difficult math problems to be irrelevant to her life. However, her identified self-regulation was demonstrated in completing important schoolwork despite her dislike and disconnectedness to math. |

of challenging math problems. On the other hand, Freya felt basic math was relevant and important to her personally. To be successful in math, Freya would spend extra time and effort on her lessons. From a relatedness standpoint, Freya and other classmates were supported with a buffer day, where students were able to complete late work, ask the teacher for assistance, or move at a faster pace. However, the relatedness with the
teacher was not made evident in the interview transcript. Freya persisted in completing math lessons given extra time offered each week, which appeared to be an important supportive feature in the math curriculum. The major issue with relatedness for Freya was the failure to find relevance for math problems such as calculating angles and slopes.

The self-regulations demonstrated from the randomly selected dissatisfaction experiences were more internally controlled compared to externally controlled. Kurt and Freya demonstrated identified self-regulation related to completing schoolwork and improving grades respectively. Neither participant was coerced with punishments, rewards, or avoiding guilt from disappointing others. Rather, Kurt and Freya identified the importance of doing their schoolwork, regardless of their personal values or feelings. Tatyonna, Jacob, and Brianna exhibited the integrated levels of self-regulation for their randomly selected dissatisfaction experiences. In each case, the values of the ambient social group were accepted and worked in harmony with their personal values. In other words, not only was the experience important at the identified level, the experiences were endorsed by their personal value system. Tatyonna was involved in four virtual clubs and was dissatisfied without more clubs related to her artistic interests. Jacob missed some “good people” in the traditional school but believed his chances for academic success and social well-being were improved in the virtual school. Brianna was dissatisfied with temporary glitches in the LMS system. However, Brianna persisted at trying to access the LMS system at a later time to “get that education.” There was no evidence of extrinsic, introjected, or intrinsic levels of self-regulation among the randomly selected dissatisfaction experiences.
Trustworthiness and Credibility

During the data collection and data analysis stages of this study, the reflexive issues were documented in an effort to separate the researcher’s presuppositions with the participants’ descriptions of virtual school experience. The challenge confronted by the researcher was to identity reflexive issues as they arise, discuss the manner of awareness, and describe the decisions made regarding the issue. The goal was to improve the credibility and trustworthiness of this research study. The researcher implemented two methods to improve credibility and trustworthiness. First, a reflexive journal was assembled from notes and comments collected during the data collection and data analysis stages of the research. Secondly, three strategies were employed for triangulations purposes.

Description of the Reflexive Journal

Keeping a reflexive journal challenged the researcher to bracket presuppositions in accordance with two phenomenological methods, descriptive phenomenology and interpretive phenomenology. Beginning with descriptive phenomenology, bracketing presuppositions were a sustained effort, which occurred during the data collection and data analysis processes. On the other hand, interpretive phenomenology began with bracketing presuppositions for the descriptions of experiences and eventually invited selected presuppositions related to SDT theory. The bracketing effort was reduced to the extent necessary to apply SDT theory during the data collection and data analysis processes.
Two interviews were scheduled with each participant about one week apart. The interviews lasted approximately 40 minutes each. During the first set of interviews, the researcher directed the interview to answer research questions 1-3 focusing on reasons for enrollment and personal descriptions of virtual school experiences. The second interview focused on satisfactions and dissatisfactions of virtual school experiences and implications of SDT theory in answering research questions 4-5. The reflexive journal entries were organized in the following sections (1) reflexive observations and potential weaknesses, (2) the limited use of guiding questions, (3) use of non-recorded discussions before the interviews and during interview breaks, and (4) emotional aspects of the phenomenological interviews. The final section focused on a description of triangulation method and results.

Reflexive observations and potential weaknesses of the researcher during the interviews. The participants were mostly seventh grade students with the exception of Freya in the eighth grade. The researcher attempted to avoid topics that might shut-down the participant, especially when seeking psychologically sensitive information. Examples included serious anxiety issues and confronting poor academic performances. A tactic for continuing the conversation was paraphrasing the participants’ responses and asking for confirmation of the researcher’s understanding. These follow-up confirmations were self-evaluated to reduce the possibility of leading or guiding the interview questions. The researcher became aware of the possibility of leading the conversation through constant paraphrasing. A decision was made to continue the paraphrasing tactic to become more conversational with the participant. The paraphrasing tactic had an additional benefit to
think about the line of questioning in an effort to add textural and structural descriptions to the participant’s experience.

Two of the participants attended a virtual school when living on out-of-state. In both cases, the virtual schools were affiliated with the same corporate virtual school provider. It appeared that Brianna’s former out-of-state virtual school was similar to her current virtual school placement. However, Jacob’s former virtual school was operated differently, presumably due to the state’s curriculum foreign language requirements in elementary education. In Jacob’s case, the out-of-state virtual school led to some frustration as Jacob was pressed to perform language skills beyond cognitive level. No decision was necessary for this observation.

During Freya’s interview, a discussion was held about her interests in theatre. The researcher asked Freya if she ever considered participation in a community theatre? Freya appeared to be interested. At the time of the interview, Freya lived near a larger metropolitan area suggesting youth opportunities in performing arts. The researcher recognized that the perceived benefit of flexibility in the virtual school for attending outside interests may be an issue for some students. Adolescent students depend on their parents or other responsible adults to support travel and supervision. The same observation applied to most virtual school participants interested in attending statewide school field trips. Although the field trips were mentioned by Jacob, Brianna and Freya, they rarely attended these outside interests due to their parent’s busy schedules or other priorities. No decision was necessary. However, the participants’ value of doing
schoolwork at a faster instructional pace may be less meaningful without the support of family members to attend opportunities serving outside interests.

The researcher made a notable error during the interview with Freya. In this case, Freya described being a member of drama club having up to 70 members present online. The researcher responded, “I can’t imagine being the teacher with 70 people messaging and giving private messages.” This comment represented a misguided opinion that may have influenced the follow-up conversation. However, the comment made by the researcher was the last comment made about the experience of being in virtual clubs. Prior to the researcher’s misguided opinion statement, Freya gave an explanation of virtual club communications using a mic, chat box, and sending private messages to the club leader. In other words, the communication with 70 club members was manageable from Freya’s descriptions. A decision was to keep the description for data analysis.

Another reflexive issue was the use of interpretive phenomenology and descriptive phenomenology. The first set of interviews collected data using the descriptive approach. The second set of interviews focused solely on the interpretive approach. The presuppositions developed from the first set of interviews were bracketed from the data collected during the second set of interviews. The researcher kept the data separate during the data analysis for both approaches. Although knowledge may have been obtained from either interview, the use of the information was guided by the researcher’s reflexive question, “was the information given for the appropriate method being analyzed?” If not, the information was bracketed as a non-given. In other words,
the data collections were not shared or intermingled across the two phenomenological methods.

The researcher grants the overlap of socialization experiences between Theme 1 and Theme 3. The first theme *meeting the mutual needs of family members in the home* implied the presence of socialization among family members. The third theme explicitly addressed voluntary socialization among the participants. A related issue was the socialization of virtual students using discussion boards. The second theme *teacher-directed instruction at a distance and in-home parental learning coach guidance* implied socialization during live class sessions and using LMS chat boxes and discussion boards. The third theme differentiated the student-to-student socialization as being voluntary with less surveillance from the virtual teacher and learning coach. These types of socialization experiences were the voluntary field trips and virtual clubs. A reflexive issue was determining if socialization was required or voluntary as a construct of virtual school experience. Socialization with family members during the school day or school activities was the focal point for Theme 3 rather than socialization with family members outside of school time.

**The limited use of guiding questions.** During the first set of interviews, the last 10 minutes were reserved to ask participants if they were aware of any myths or misconceptions about virtual school experiences? Most of the virtual students were unable to generate myths about virtual school students on their own. A decision was made to confront the participants about three myths generated by the researcher’s presuppositions. The three myths were (1) all work being completed at the computer, (2)
virtual students being isolated and lacking socialization, and (3) virtual schools being
easier compared to traditional schools. These questions were intended to reveal
psychologically sensitive responses. The participants were asked to either dispel or agree
with the myth and explain their rationale. A decision was made to use the participants’
reactions to myths and alert the reader of the guided question preceding their responses.
The use of virtual school myths produced useful information in revealing the values and
beliefs of participants about their virtual school experiences.

Use of non-recorded discussions before the interviews and during interview
breaks. Kurt was the first student interviewed following the pilot study. In Kurt’s case,
his mother witnessed each interview. Some discussions took place before the interview
and during a mid-interview break. These conversations were not recorded to reduce
intimidation and gain trust with the participant and his mother. Likewise, Tatyonna’s and
Freya’s interviews were witnessed by their mothers. Brianna’s and Jacob’s mothers were
nearby but did not directly witness the interview conversations. However, their mothers
were invited to visit with the researcher before each interview and during the mid-
interview breaks. The researcher requested permission to use any information obtained
during the non-recorded visits, which were granted by the participant’s mothers. The
information used in the data collection from non-recorded interview breaks were details
related to Kurt’s epilepsy, Jacob’s special education plan, Brianna’s autistic tendencies,
and Tatyonna’s admiration for her mother as a role model in pursuing a post-secondary
science degree. In Kurt’s case, the pre-interview discussion with his mother regarding
her son’s epilepsy was consistent with the written autobiography used in the data
Emotional aspects of the phenomenological interviews. During the interviews, the researcher became aware of an emotional connection with the participants, likely due to a perception of their youthful innocence. It was challenging at times to maintain a professional interview presence when confronted with experiences related to hope, despair, boredom, excitement, laughter, sadness, and care for the participants’ well-being. Listening to the voice recording and reviewing the transcripts was emotionally rewarding. However, the researcher’s feelings were set-aside to concentrate on the intentions of the participants’ experiences to fulfill their psychological needs.

Description of the Triangulation Strategies

Three strategies served the triangulation method chosen for this research. The first strategy was to make the data transparent to the reader. This strategy was employed by sharing many of the actual excerpts from the interview transcripts. The excerpts were selected to support structures of common themes, recurrent themes, and non-thematic descriptions of virtual experience described by the participants. The non-thematic patterns of experience were thought to be noteworthy despite being relatively divergent among the participants. In other words, an attempt was made to make the entire data set explicit to the reader.

Credibility and trustworthiness was supported by sharing the actual excerpts, focus areas, constituents of themes, and the final themes to answer the five research questions. The second strategy was the comparison between the interview texts and the
written pre-interview exercises. The written exercises were autobiographies and a five-day journal of satisfactions and dissatisfactions in the virtual school. Inconsistencies between the two different data sources were duly noted to offer the reader support for credibility and trustworthiness.

And finally, the third strategy employed the use of two independent observers charged with reviewing the data and reporting inconsistencies of their findings. A qualified triangulation analyst was hired to read the interview transcripts and report differences of opinion about the structures of experience and the final themes. These inconsistencies were reported in Table 31 to add credibility and trustworthiness of this study. Table 31 included a discussion of the inconsistencies and researcher’s decisions.

Discussion of the Triangulation Strategies

The following section present the reflexive comments based on concerns and observations during the data collection and data analysis process. The commenting included the manner of awareness, objects of awareness, and researcher’s decisions.

Triangulation strategy 1: Voice recorded interviews converted to text verbatim. A decision was made to share several excerpts of the interview text and written autobiographies in the data analysis. The large number of excerpts were preceded with the interviewer’s questions adding context to the responses. During the transcription process, the researcher became aware of his own grammatical errors as a concern. Some corrections were made to the researcher’s text when used to add context to the participants’ responses. The participants’ texts were converted verbatim including grammatical errors. Another issue was the talk-aloud nature of the interview
conversation. The explanations of questions and confirmation of meanings were lengthy at times. A decision was made to reduce or summarize the researcher’s narrative when presented with the participant’s responses.

Triangulation strategy 2: Comparing written autobiographies and five-day journal with interview text. Nearly all of the participants written autobiographies were consistent with the interview texts. The written autobiographies were divided into meaning units using numbers to reference their location in the running text. The related meaning units in the interview transcripts were linked to the meaning units in the written autobiographies. The only exceptions were portions of Kurt’s and Freya’s autobiographies. In Kurt’s case, the following description was not addressed in the interview text as it was discussed during the non-recorded introductions prior to the first interview.

Kurt: I am also epileptic. Thunderstorms and lightning just happen to be one of my seizure triggers for my photosensitive epilepsy. I have to stay away from lightning and strobe lights. In the spring and fall, there are a lot of storms in (state where the virtual school resides). I would miss a lot of school and school activities because it would be storming and I couldn’t go because I might have a seizure / mu40.5.

The researcher decided to use Kurt’s written description since it was discussed during the non-recorded discussion with his mother prior to the interview. The written account was typed and written in detail. Freya’s excerpt from her written autobiography regarding the mobility of virtual school experiences did not appear in the interview texts.

Freya: Going to (virtual school’s name) is also useful when you’re busy and have access to the internet because you can do the work on your mobile device /mu50.
In Freya’s case, a decision was made to exclude the autobiography text relating to mobility of the virtual school as it was not referenced in the interview transcripts or during the discussions with the parent before the interview or during the mid-interview break.

The five-day satisfaction and dissatisfaction journals were consistent with the interview texts. In all cases, the participants were asked to elaborate on each day of their journal. In some cases, the journal entries were brief and narrowly focused. For example, Tatyonna wrote the following:

Tatyonna: Monday – I was satisfied with the grades I got. Tuesday – I was semi-satisfied with the grades I got. Wednesday – I was dissatisfied with the grades I got. Thursday – I was very satisfied with the grades I got. Friday – I was very satisfied that I didn’t have to do school Friday.

In comparing the five-day journal with the interview transcripts, the entries appeared to be consistent adding credibility to the data collection.

**Triangulation strategy 3: Input from the triangulation analyst and the researcher’s decisions.** Three final themes were developed to answer research questions 1-3. The themes were developed from acts directed towards objects revealing the participant’s intentions. The researcher identified 169 intentions for all participants. These intentions were structured into themes for each participant. A total of 29 themes were developed, representing an average of nearly six themes per participant. By means of abstraction, the average of six themes were reduced to three common themes describing virtual school experiences of the study group. The worksheets detailing the reduction of participant’s texts into individual themes, and later into common or recurrent themes among the individuals were reviewed by the triangulation analyst.
The descriptive analysis followed an inductive pathway in search of specific instances to draw a general conclusion in the construction of themes. Any inconsistencies between the researcher and triangulation analyst were recorded on Table 31. The inconsistencies focused on the participants’ intentions, conceptualized constituents structuring their experiences, and the final construction of common themes or recurrent themes. Likewise, the inconsistencies from the interpretive analysis were included in Table 31. However, the interpretive analysis took a more deductive pathway following the generalized components of SDT theory and searching for specific instances supporting the theory. The interpretive analysis focused on answering research questions 4-5. The interview texts and five-day written journal were examined for experiences of satisfaction and dissatisfactions in the virtual school. Subsequently, the experiences were tagged as fulfilling needs for competence, autonomy, relatedness, or a combination thereof. Finally, the analysis explored the locus of causality for the satisfaction or dissatisfaction experience. The locus of causality suggested a level of self-regulation being either extrinsic, introjected, identified, integrated, or intrinsic.

Two inconsistencies between the researcher and triangulation analyst. The actions taken by the researcher were identified for each inconsistency. Beginning the first inconsistency, the researcher chose to move Freya’s excerpt (mu41) Theme 2, constituent #3 independent learning and flexible pacing, to constituent #2 assessment requirements and options. The researcher agreed that Freya’s excerpt (mu41) regarding the completion of late schoolwork for a discounted grade was more highly related to assessment requirements and options compared to independent learning and flexibility.
Table 31.

**Triangulating Analyst Comments and Researcher’s Actions Taken**

<table>
<thead>
<tr>
<th>Participant and Reference</th>
<th>Triangulation Analyst’s Comments</th>
<th>Researcher’s Actions Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme 2, constituent #3, mu #41</td>
<td>Freya’s excerpt (mu41) states, “I end up failing. And, if I turn it in late, I won’t get full credit. And, I may get an “A” on it, but it doesn’t matter cause I won’t get full credit/mu41. <strong>Comment:</strong> It appears mu41 could be associated with constituent #2, assessment options. It was assigned to constituent #3, independent learning and flexible pacing. Freya’s excerpt could be related to both constituents.</td>
<td>Agreed. The researcher moved Freya’s excerpt mu41 from constituent #3 to constituent #2.</td>
</tr>
<tr>
<td>Satisfaction Theme, constituent #2, S11</td>
<td><strong>Comment:</strong> Kurt’s excerpt from the satisfaction theme for constituent #2 should be referenced as S12 in the narrative script rather than S11.</td>
<td>Agreed. The reference code was changed to match Kurt’s excerpt.</td>
</tr>
</tbody>
</table>

The second inconsistency was likely a typo. The reference number matching Kurt’s excerpt, “some people give me the choices they think I can handle” should be coded as S12 rather than S11. Kurt’s excerpt supported constituent 2, *having guided choices about planning my day* for the common satisfaction theme, *student freedoms, guided choices, and a sense of control*. 
CHAPTER V  
DISCUSSION

Chapter V was organized beginning with a brief overview of the study followed by the summary of the findings. The latter sections were findings related to literature, limitations of the study, strength and weaknesses of the study, implications of the study, recommendations for future research, and the conclusion.

Overview of the Study

In the past 20 years distance education has evolved rapidly. The accessibility to online learning or virtual schools has become a viable option for many students. Some of the factors allowing access to virtual schools were the availability of computing devices, widespread connectivity over the Internet, improvements in web-based technology, and state policies offering school choice options. Improvements in pedagogy accompanied technological advancements meeting the needs of online learners. Several research studies have contributed to best practices for providers of online schools and programs to mitigate spatial and temporal boundaries. With the evolution of technology and online pedagogy came rapid growth of online learning. The number of online learners grew nearly ten-fold from 2001 to 2015 (Clark, 2001; Watson et al., 2015). However, Watson (2016) estimated only 10% of online learners were represented by full-time virtual school students.

Little is known about the lived experiences of public virtual school students. The obscure nature of virtual schools may be related to the private home-based settings, the relatively small number of full-time virtual students compared to traditional student
enrollments, and the shorter history of virtual schools. The purpose of this study was to explore the personal meanings and motivational aspects of being a virtual school student in a particular virtual school. The personal meanings were expressed in psychological terms, while the motivational factors explored self-regulation of behavior. The detailed and rich descriptions of lived experiences were expected to improve the readers understanding of virtual school preference for a small number of adolescent students.

The Descriptive Phenomenological Method in Psychology (Giorgi, 2009) was selected to explore the common essences of being a virtual school student and identify the psychological descriptions of experiences. The application of Interpretive Phenomenological Analysis from Smith et al., (2012) was administered to interpret the self-regulation behaviors unique to each student according to SDT theory. Self-determination theory posits that human motivation requires satisfaction of needs for competence, autonomy, and relatedness to facilitate growth and positive outcomes (Deci & Ryan, 2000).

A quote from Bandura (1993) was adopted by the researcher as the compelling reason for conducting the study. According to Bandura (1993), “A major goal of formal education should be to equip students with the intellectual tools, self-beliefs, and self-regulatory capabilities to educate themselves throughout their lifetime” (p. 136). Adopting Bandura’s educational goal served as a premise for scientific exploration of the lived experiences of adolescent students attending a particular virtual school. This study revealed many of the instructional tools, student beliefs, and self-regulations of the five participants.
The seventh and eighth grade participants were randomly selected from a particular virtual school located in a north, west-central state. The researcher conducted two separate interviews with each participant in their homes or nearby public libraries across the state. The interviews generated nine hours of voice recordings, which were converted to text verbatim. In addition to the interview data, each participant completed a brief autobiography and five-day satisfaction/dissatisfaction journal about their virtual school experiences. The data collection and data analysis answered the following research questions.

1. What attracts (some) students to virtual schools?
2. Why do students continue attending or return to virtual schools?
3. What are some examples of experiences students have in virtual schools?
4. What are some examples of student satisfaction in a virtual school setting?
5. What are some examples of student dissatisfaction or frustration in a virtual school setting?

Summary of Findings

The summary of findings were organized into five sub-sections designed to answer the research questions:

1. Descriptive Themes of Virtual School Experiences - research questions 1-3.
2. Fulfillments of Psychologically Sensitve Needs - research questions 1-2.
5. Samples of Self-Regulations by Participant – research questions 4-5.
The findings were presented in summary form from the results reported in Chapter IV. Refer to Chapter IV for a complete description of the results.

Descriptive Themes of Virtual School Experiences

Common themes were developed from similar experiences shared by all participants. The common to all experiences were necessary for construction and integrity of the theme statement. Recurrent experiences were common to at least three of the five participants and considered to be common to some of the participants. The recurrent statements support the themes, but were not considered necessary for the construction of the theme.

Common themes 1-3 were determined using the descriptive phenomenological method (Giorgi, 2009). The common themes describing virtual school experiences in this study were

a. mutual needs of participants and family members being met in the home,

b. teacher-directed learning at a distance and in-home parental coaching, and

c. socialization occurs in the home, community, and during voluntary participation in virtual school activities.

Discussion of common Theme 1. The first theme, mutual needs of participants and family members being met in the home was supported by two constituents common to all participants, (1) supportive family members present in the home, and (2) needs of family members other than the participant. The common constituents of the theme suggested virtual students were not alone in the home during the school day. The second common constituent revealed family members in the home had a mutual need of care and
support in the home. In most cases, the parent had a need to support their child in receiving an education consistent with their beliefs and needs in a parenting role. Another structure of the experience was the social and physical needs of others present in the home.

Others in the home may include siblings and family members such as a parent and grandparent. The two recurrent constituents supported by three of the participants were (1) avoiding anxiety disorders/issues, and (2) sense of belonging. These recurrent constituents support the theme but were not necessary for the theme to exist. Three of the five participants had significant anxiety disorders that were attended to in the home environment for safety and security reasons. The anxiety disorders included epilepsy, autism, and aggressive impulsivity. The sense of belonging related to disliking teachers and peers, bullying behaviors, and fear of not fitting social norms.

**Discussion of common Theme 2.** The second common theme was teacher-directed learning at a distance and in-home parental coaching. The theme consisted of seven constituents common to all participants (1) using the LMS system to plan, complete assignments, and access resources, (2) assessment requirements and options, (3) independent learning and flexible pacing, (4) interacting with the virtual teacher and receiving extra help, (5) depending on the parent as learning coach, (6) academically challenging, and (7) kinesthetic learning. All participants shared the role of the LMS to directing their daily work, accessing lessons, identifying learning resources, keeping track of their progress, providing warning when falling behind, completing assessments, and planning ahead. The assessment
option involved a policy where virtual students may retake tests to improve their grades. However, spending more time on re-taking a lesson quiz reduced the time needed to stay current with all lessons, which was in conflict with flexible pacing. The flexible pacing constituent had a wide range of meanings to the participants. Flexibility ranged from reading school assignments at or away from the computer, preferred time of the day for completion of schoolwork, and moving at a faster or slower instructional pace.

Interacting with the virtual teacher typically involved participation in live class sessions, requesting teacher assistance during the teacher’s office hours, participating in discussion boards, and comments received from teacher-graded assignments. All of the participants had parental learning coaches. Having a learning coach was a policy requirement from the virtual school. The learning coach provided encouragement, guidance and support for their child to be current with their assignments and do their best work. More specifically, the learning coach assisted their children with difficult assignments, provided advise about instructional pacing, and suggested re-taking assessments to improve grades in school. Other roles included communications with the teachers and support for attending statewide testing and optional field trips. The last constituent common to all participants was their belief in the virtual school being academically rigorous and challenging. The participants granted it may be easier to stay home for schooling. However, the constant daily demand to complete lessons challenged each participant to work diligently to earn good grades. The experience of kinesthetic learning was shared by all participants. The participants described hands-on experiences with art projects, music instruments, and
The physical education requirements involved running outside, dance exercises, and going to community gyms and outdoor sports programs.

**Discussion of common Theme 3.** The third common theme was *socialization occurs in the home, community, and during voluntary participation in virtual school activities*. Constituents common to all participants were (1) *dispel socialization myths*, (2) *socialization in the home and community*, and (3) *voluntary virtual school activities*.

All of the participants were given the opportunity to generate myths or misconceptions they were aware of prior to being confronted with three myths. Only one participant was able to generate a myth on his own, related to all schoolwork completed at the computer during the entire day. The participants were asked if they would agree or dispel three myths proposed by the researcher. Myth one claimed virtual school students were isolated and lacking social skills. Secondly, virtual students learn everything at the computer all day. The third myth claimed virtual schools being easier compared to traditional schools. All participants dispelled each myth. The participants socialize with members in their home, meet with family and friends in their geographic community, and to a lesser extent, visit virtually with classmates. Virtual classmates communicate during live class sessions and through participation in discussion boards. The participants complete work away from the computer using reading materials, manipulatives sent to their homes, and exercising for physical education. The participants granted the convenience of being home may be easier compared to the traditional school. However, each participant indicated the virtual school experience was academically challenging and felt they were receiving a quality education. The second constituent, *socialization in the*
home and community was met through the presence of family members in the home and visiting with friends face-to-face in the community. The third constituent, virtual school activities/opportunities were shared by three of the five participants. Although all of the participants mentioned opportunities to attend optional field trips, only one participant mentioned attending field trips on occasion. The field trips were arranged by the virtual school and made available to students across the state. One participant attended an annual orientation at the beginning of the school year. The orientation was held at a bowling alley and skating rink offering social opportunities to meet virtual students. Three of the virtual members were active in virtual clubs where they would meet with past acquaintances and meet new friends.

**Overall thematic statement.** An overall thematic statement was constructed from the common essences of themes 1-3. The 10 common essences were (1) supportive family members present in the home, (2) needs of family members met other than the participant, (3) using the LMS system, (4) having assessment requirements and options, (5) exercising independent learning options and flexible pacing, (6) interacting with the virtual teacher and receiving extra help, (7) depending on the parent learning coach for guidance, (8) being academically challenged, (9) dispelling socialization myths, and (10) being social in the home and community. The overall thematic statement capturing the common essences of virtual experience states, *A distance learning school supported by family members, community resources, a teacher-directed curriculum and offers flexibility for independent learning.*
Fulfillments of Psychologically Sensitive Needs

Three descriptive themes revealed the essences of being a virtual school student. These themes were (1) mutual needs of participants and family members being met in the home, (2) teacher-directed learning at a distance and in-home parental coaching, and (3) socialization occurs in the home, community, and during voluntary participation in virtual school activities. The researcher found that the participants’ psychologically sensitive needs were served by the three descriptive themes. However, the fulfillments of needs were lived-through differently by each participant. See Table 32 for a summary of psychologically sensitive needs by participant. Theme 1 mutual needs of participants and family members being met in the home appeared to be closely related to the psychologically sensitive needs of the participants. Some samples of psychologically sensitive needs follow.

The virtual school experience fulfilled Kurt’s need for safety and security. Kurt’s epilepsy was triggered by photosensitive stimuli including lightning storms, camera flashes, and strobe lights. All of the triggers may be managed from Kurt’s home, enabling regular school attendance without the fear of an epileptic seizure.

Tatyonna described herself as being lazy and very temperamental. Her self-proclaimed behavior was demonstrated by finding easy shortcuts in learning, which frustrated her mother as the learning coach. Tatyonna would rather use Google™ to find information than take notes. Another issue was using live class time to ask questions while simultaneously completing a lesson quiz. Tatyonna’s need for self-regulation was
Table 32

*Summary of Psychologically Sensitive Needs by Participant*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Psychologically sensitive needs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt</td>
<td>photosensitive epilepsy, fear or uneasiness of the traditional school environment, and improving academic performance.</td>
</tr>
<tr>
<td>Tatyonna</td>
<td>laziness, temperamental personality, fear or uneasiness of the traditional school environment, improving academic achievement, relief for mother homeschooling four children,</td>
</tr>
<tr>
<td>Jacob</td>
<td>anger, impulsivity, poor literacy skills, fear or uneasiness of the traditional school environment and improving academic achievement.</td>
</tr>
<tr>
<td>Brianna</td>
<td>autism disorder, speech deficiencies, and fear or uneasiness if the traditional school environment.</td>
</tr>
<tr>
<td>Freya</td>
<td>support family at home and improving academic achievement.</td>
</tr>
</tbody>
</table>

Source: Narrative data from Figure 10, Chapter IV.

supported by her mother as an authoritative parent, providing emotional support while gradually releasing school responsibilities from mother to child.

Jacob was a conscientious middle adolescent who recognized his issues with anger, reading literacy, and writing literacy. He was driven to complete school and sought independence in becoming an adult. Jacob’s two previous attempts at traditional school enrollment were short-lived due to disruptive behavior and being a bully. In the event of disagreement or confusion, Jacob became frustrated resulting in impulsive aggressive behaviors at times. The virtual school fulfilled his need to decouple from the group learning pace and avoid personal embarrassment due to his low academic skills. The virtual school offered Jacob a slower pace and specially designed instruction in his areas of interest.
Brianna had been in private home schooling and virtual public schooling since being in Head Start. She was conscientious about her anxiety issues and wished to be understood by others. Brianna diagnosis of autism meant she was easily distracted, which in her own words, “may cause an autistic meltdown.” The virtual school fulfilled her needs to focus and concentrate on her studies in an organized and routine manner.

Freya claimed she had the best of both worlds, being at home and accessing the public school. The virtual school fulfilled Freya’s need to change her instructional pace to improve her grades. Freya has used the option to repeat portions of a lesson and retake quizzes for a better grade.

Satisfaction Experiences of Virtual School Students

The researcher identified 115 satisfaction experiences among the five participants. Similar experiences were referred to as constituents for potential theme construction. Constituents found to have a majority of participants with similar experiences were selected for theme construction. Conversely, constituents with a minority of participants with similar experiences were discarded from the theme. The constituents shared by all participants became the essential structure of the theme otherwise known as essences.

A single satisfaction theme was determined from the interpretive phenomenological method (Smith et al., 2012) and the application of SDT theory (Deci & Ryan, 2000). The common interpretive theme was student freedoms, guided choices, and a sense of control. The constituents common to all participants were (1) knowing ahead of time what is expected to complete my school work, (2) having guided choices
about planning my school day, and (3) receiving assistance from my parental learning coach. The constituents common to three of the participants were convenience of learning in the home, and immediate response from the virtual teacher.

Discussion of the satisfaction theme. A source of satisfaction for all participants was knowing what to expect ahead of time allowing flexible pacing. Each participant was satisfied with structures enhancing independent work and the ability to change their instructional pace. The participants had the option to retake assessments and check their progress for lesson completion and grade status. The lessons utilized a familiar format with step-by-step instructions to move independently through the curriculum. The lessons and assessments were presented in short sequential units for ease in navigating through the curriculum. Each participant was satisfied with the support they received for planning their school day. Teachers and learning coaches allowed flexibility at times to attend family events or participate in outside interests. However, the decisions to take time away from school had consequences. Participants mentioned either working ahead of the lesson schedule to have time away from school or making-up schoolwork after taking time away from school. All of the participants valued their parental virtual coaches for support and encouragement. Parental learning coaches assisted the participants in completing schoolwork and making decisions about flexible learning options. Three of the participants were satisfied with the convenience of learning in the home. Conveniences included casual dress, breaks to play video games, comforts of having your own room, and finding quiet reading areas. Another satisfaction experienced by three of the participants was immediate response from the virtual teachers at times.
In one case, the experience occurred with receiving a grade for late work allowing the participant to plan ahead. The other two cases were immediate responses from their teachers during live class sessions.

Dissatisfaction Experiences of Virtual School Students

The researcher identified 60 dissatisfaction experiences among the five participants. The dissatisfactions were divergent, not being shared by a majority of the participants. Hence, no common themes were found for dissatisfaction experiences. In lieu of theme construction, dissatisfaction experiences were abstracted to a higher level of generalization until focus areas emerged. Three focus areas for dissatisfactions were (1) constant demand to complete schoolwork, (3) virtual clubs unrelated to my interests. (3) difficulties in communicating with teachers and peers. The focus areas included constituents structuring the experiences. None of the constituents were shared by more than two participants.

The interpretive phenomenological method from Smith et al. (2012) and the application of SDT theory (Deci & Ryan, 2000) were applied to the dissatisfaction experiences in the same manner as the satisfaction experiences. Two observations were made. First, the total number of satisfactions were almost double the total number of dissatisfactions. Secondly, the satisfaction experiences were mostly convergent as opposed to dissatisfactions experiences being mostly divergent.

Discussion of dissatisfaction focus areas. Three focus areas were identified: (1) constant demand to complete schoolwork, (2) virtual clubs unrelated to my interests, and (3) difficulties in communicating with teachers and peers.
One participant shared three dissatisfaction experiences focusing on the constant demand to complete schoolwork. Kurt was dissatisfied that he had to continue doing schoolwork while his sister was finished at her traditional school for the day. Another comparison with the traditional school was not having time away from school when home with an illness. Kurt mentioned the schoolwork was always there until completed.

The second focus area of dissatisfaction experiences was virtual clubs unrelated to my interests. Tatyonna was dissatisfied not having a performing arts club for playing instruments and vocal singing. Tatyonna suggested a larger role for virtual students to lead club activities in the performing arts. Brianna was dissatisfied not having the opportunity to visit with teachers to start your own club.

Four participants mentioned difficulties communicating with teachers or peers. The communication difficulties were mostly divergent. Kurt did not wish to contact his teacher or peers online at times. Brianna was dissatisfied not knowing her virtual peers personally. According to Brianna, not knowing classmates made it more difficult to have conversations using discussion boards. Another dissatisfaction from Brianna was excessive wait time for a few of her teachers to grade and return assignments. Jacob was not able to use the microphone to converse with others during live class sessions as it would disrupt class. Jacob lacked the reading and writing skills to make effective use of chat boxes and discussion boards. Freya was dissatisfied as there was little opportunity to visit with friends during live class sessions. Although four of the participants shared issues with communications, their experiences with communication experiences were too
diverse to construct a theme. The constituents of experience were not supported by a majority of students.

**Samples of Self-Regulations by Participant**

The researcher found 115 satisfaction experiences and 60 dissatisfaction experiences among the five participants. A random sampling of one satisfaction experience and one dissatisfaction experience resulted in 10 virtual student experiences for the application of SDT theory. See Table 33 for a summary of the self-regulations found from the 10 randomly selected satisfaction experiences and dissatisfaction experiences by participant. The researcher made two observations regarding the application of SDT theory. First, two of the dissatisfaction experiences were found to be *extrinsic* regulations with an external locus of causality. Secondly, the remaining eight experiences were either *identified* self-regulations or *integrated* self-regulations. In other words, eight of the randomly selected student experiences tended to have an internal locus of causality.

The needs for competence, autonomy, and relatedness were met in most cases with the following exceptions. Brianna’s dissatisfaction with glitches in the LMS system hampered her needs for competence and autonomy. Competence needs were temporarily unmet as Brianna was unable to navigate the LMS and complete assignments. Likewise, Brianna’s need for autonomy was compromised as the glitches in the LMS system reduced her ability to make choices regarding her schoolwork. Brianna’s relatedness needs were supported with her confidence of the LMS system being fixed by school
Table 33

**Summary of Self-regulations of Randomly Selected Virtual Student Experiences**

<table>
<thead>
<tr>
<th>Participants</th>
<th>Self-Regulations Found with Satisfaction Experiences</th>
<th>Self-Regulations Found with Dissatisfaction Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt</td>
<td>Receiving help from mom as learning coach when the Internet was down.</td>
<td>Comparing traditional school hours with virtual school hours. My sister came home from traditional school and I need to catch-up on schoolwork.</td>
</tr>
<tr>
<td>Tatyonna</td>
<td>Participation in four different virtual clubs of interest.</td>
<td>Lack of student-led performing arts club matching my interest.</td>
</tr>
<tr>
<td>Jacob</td>
<td>Receiving special food treats from my mom for completing schoolwork.</td>
<td>Missing some fun times in his former traditional school yet recognizing the virtual school as a more viable option for success.</td>
</tr>
<tr>
<td>Brianna</td>
<td>Not liking school at times, while recognizing the importance of receiving an education.</td>
<td>Glitches in the LMS system forcing me to complete schoolwork at a later time.</td>
</tr>
<tr>
<td>Freya</td>
<td>Being able to visit in a family friend’s home with a virtual peer contingent upon receiving good grades in school.</td>
<td>Completing difficult math problems and failing to see personal relevance</td>
</tr>
</tbody>
</table>

Source: Narrative data from Table 28 and Table 30, Chapter IV. The satisfaction experiences were paraphrased from actual excerpts.
Kurt exercised the choice to complete bookwork while the Internet was not working. Lastly, Freya’s need for relatedness in completing difficult math problems was found to be an issue. Freya did not view the calculation of slopes and angles to be relevant to her needs. In other words, Freya’s need for relatedness would be resolved if she found the math skills to be relevant with her ambient social group during instruction or as a perceived need in the future.

Three observations were made related to the application of SDT to the randomly selected satisfaction experiences and dissatisfaction experiences. An observation consistent with SDT theory was the needs for competence, autonomy, and relatedness were constant regardless if the participants’ experiences were satisfying or dissatisfying. Secondly, all of the randomly selected school experiences fell within the range of extrinsic motivation rather than intrinsic motivation. The third observation was the absence of introjected self-regulation. None of the randomly selected experiences involved behaviors to avoid feelings of guilt or to gain temporary self-worth from others.

In summary, four of the cases suggested the participants identified the importance of completing schoolwork consistent with ambient social group. Likewise, four cases suggested the participant’s values were integrated with the values of the school experience. In only two cases, the participants responded extrinsically to rewards for the completion of acts dictated by powerful others.

Findings Related to Literature

Several findings were related to the literature. These finding were organized by the descriptive themes, satisfaction theme, and dissatisfaction focus areas.
Theme 1: Mutual Needs of Participants and Family Members Being Met in the Home

Findings related to the common constituent, supportive family members present in the home, were reported by Green (2013). In Green’s (2013) phenomenological study, some of the participants reported needs to complete school in a supportive home setting to mitigate issues related to health concerns, bullying, and flexible learning needs. Marchant, Paulson, and Rothlisberg (2001) found middle school students prefer a caring school climate for a sense of well-being. The description of well-being was a safe learning environment and the responsiveness of teachers and parents taking interest in the child’s needs. A phenomenological study by Pleau (2012) examined eight adolescent students in high school. Pleau (2012) reported a theme as access to a virtual school addressing chronic illness and anxiety problems. Another theme from Pleau (2012) was individualization, described as flexible pacing and receiving one-to-one help from the teacher.

Findings related to the second common constituent of Theme 1, needs of family members other than the participant mostly revolved around parenting needs. Parent involvement was identified as a family need other than the participant. Marchant et al. (2001) found authoritative parenting styles encouraging self-regulatory practices and emotional support have children with higher levels of academic achievement compared to authoritarian or permissive parents. According to Marchant et al. (2001) and Gonzalez-DeHass et al. (2005) parents choosing virtual schools were consistent with the parents’ perception of greater involvement and the opportunity to exercise their parenting style in the home-setting. Unlike conventional schools, the parent has the opportunity to be
intimately involved in their child’s education on a daily basis. Marchant et al. (2001) found “parenting style, parental involvement teaching style, and school atmosphere change student’s view of learning… that students internalizing these messages received from their learning contexts as early as late elementary/middle school years” (p. 515). A study by Liu et al. (2010) found parental support is an extrinsic motivator, which may be used to internalize the value of education. A mixed qualitative and quantitative study by Prosser (2011) found parents valued school choice options to educate their children in different ways. The findings supported the mutual needs of family members and were not necessarily dependent upon adolescents with anxiety disorders or having issues with a sense of belonging.

Common Theme 2: Teacher-directed Learning at a Distance and In-home Parental Coaching

The related findings to Theme 2 were mostly related to the learning management system (LMS), assessment options, independent learning and flexible pacing, receiving extra help from the teacher, and being academically demanding. Distance education tools are organized as learning management systems (LMS) and student information systems (SIS) according to Watson (2007). LMS software generally focuses on communication tools, grading and delivery of course content, “Course content may include text, graphics, video, audio, animations and other interactive tools” (Watson, 2007, p. 10). The LMS system offers online assessments that can be automatically graded. The SIS system is used to track student demographics, contact information, assessment data, and support data-driven decision-making for individualized student interventions. Coates et al.
(2005), Morgan (2003), and Rapuano and Zoino (2006) offered a similar description of LMS systems as tools for content organization, communications, student assessment, grade book, and tracking progress across all of the educational activities. The role of the online teacher was closely aligned to pre-designed course content in the review of literature. “The course was developed anticipating all of the needs of all potential students before they even enrolled in the course” (Tunison & Sackney, 2004, p. 37). A study of middle school online students by Thomas (2008) found the pre-designed course contributed to middle school students’ ability to navigate the lessons and access LMS features. Meij and Boersma (2002) described email as a synchronous feature of the LMS for greater organization of lessons and materials using the LMS.

A study related to assessment requirements described flexibility of taking exams at different times of the day, potentially in different locations, and taking the amount of time needed to complete the exam in some cases (Cassady & Gridley, 2005). The option to retake exams in the virtual school supported learner control, a construct of self-efficacy. Hodges (2004) stated lack of control perceived by the learner has consequences, “Learners will have no motivation to participate in a learning experience without the belief that change is possible” (p. 2). The assessment options found in the virtual school support internalization of self-regulation. According to Gonzales-De-Hass et al. (2005), intrinsically motivated learners seek out challenges, persist when difficulties arise, and view errors as opportunities to learn.

Studies related to independent learning and flexible pacing were highly related to LMS features and teacher attentiveness. Swan (2002) found 10 concepts supporting
independent learning and pacing: (1) instructors acting as facilitators, (2) using a variety of presentation styles, (3) multiple exercises, (4) hands-on problems, (5) learner control pacing, (6) frequent testing, (7) clear feedback, (8) consistent layout, (9) clear navigation, and (10) available help screens. Another study from Schunk (1989) described proximal, short-term goals operationalize self-motivation with immediacy of feedback. Hence, the virtual school’s step-by-step instructions to complete short daily lessons were supported by research from Swan (2002) and Schunk (1989).

Receiving extra help from the virtual teacher as a collaborative facilitator was supported by three studies in the review of literature. Virtual teachers use synchronous and asynchronous communications in monitoring and supporting students offering a choice of interaction and a culture of collaboration (Means et al., 2009; Roblyer, 2006; Wang & Hsu 2008).

Theme 2 included the common constituent, depending on the parent as learning coach. Few studies were found related to the parent serving as learning coach. However, Theme 1 mutual needs of participants and family members being met in the home addressed a similar constituent being needs of family members other than the participant, which was related to participants depending on their parental learning coaches. Three studies supported nurturing parenting styles and higher levels of parent involvement made possible by home-based education settings (Gonzales-DeHass et al., 2005; Marchant et al., 2001; Prosser, 2011).

Participants perceived the virtual school as being academically challenging. A phenomenological study by Green (2013) found similar descriptions of experience with
students transitioning from virtual high school to college. A participant from Green (2013) stated, “With online schools I had to do my work and push myself, and in college no one pushed you but yourself” (Green, 2013, p. 129). The phrase *academically challenging* in Green’s (2013) study was related to time management demands, whereas; the participant’s perception of *academically challenging* in this study was described as hard work and the need to push yourself to get it done.

**Common Theme 3: Socialization occurs in the Home, Community, and during Voluntary Participation in Virtual School Activities**

The three constituents of Theme 3 were (1) *dispel socialization myths*, (2) *socialization in the home and community*, and (3) *during voluntary virtual school activities*. A limited number of related studies were found in the review of literature.

In Green (2013) two participants discussed a myth about socialization of virtual school students, their responses were consistent with the participants in this study. The participants in Green (2013) use the terms *homeschool* and *virtual school* synonymously. “Oh, I wish people understood it better. I hate it when people think I was homeschooled. I have to say, no I wasn’t… no I’m not weird, I’m not a freak. I do have social skills. I’m so sick of it, I usually avoid the topic completely because it takes so long to explain” (Green, 2013, p. 111). “Yeah, I mean it’s almost like home schooling, they ask you do your work in your pajamas? Honestly, I’m never home, it’s homeschooling. But I’m on the go. I’m doing a million things and being at home isn’t one of them. They think it is interesting, I mean, come on, we’re in the 21st Century, going to school online is pretty cool” (Green, 2013, p. 113).
Socialization in the home and community was not found in the review of literature. However, socialization may have been implied by some participants from Green (2013). A participant was quoted stating, “Honestly, I’m never home, it’s homeschooling. But I’m on the go. I’m doing a million things and being at home isn’t one of them” (Green, 2013, p. 113).

A variant constituent supported by three of the participants in this study was socialization during voluntary virtual school activities. No related studies were found in the review of literature.

Satisfaction Theme: Student Freedoms, Guided Choices, and a Sense of Control

The common satisfaction theme was student freedoms, guided choices, and a sense of control. The constituents common to all participants were (1) knowing ahead of time what is expected to complete my school work, (2) having guided choices about planning my school day, and (3) receiving assistance from my parental learning coach.

Knowing what to expect ahead of time was related to Blazer’s (2009) compilation of effective online research components. Blazer’s (2009) components related to this study were (1) clear expectations, (2) concrete deadlines with some flexibility, (3) outlines of course requirements, (4) a variety of technological approaches including simulations, (5) manipulatives, and tutorials, (6) lessons divided into short mastery sequences so students can progress in stages, (7) age appropriate developmental activities, (8) building on students’ accomplishments an and through the cognitive stages, (9) sufficient opportunities for practice until mastery is achieved, (10) collaboration among students, and (11) away from the computer activities. Components from Blazer
(2009) not found in this study were problem-based learning, student-centered teaching, and performance-based assessment. These latter components may (or may not) be present in the virtual school since the study focused on given phenomenological student experiences rather than effective online learning components. The research from Blazer (2009) cited several studies related to effective online learning (Benard et al., 2004; Cavanaugh et al., 2004; Cavanaugh, 2008; International Association for K-12 Online Learning, 2007a; Patrick, 2008; Roblyer, 2006; Smith et al., 2005).

A second constituent of the satisfaction theme was having choices about planning my school day. Related studies included reasons why online learning was appealing to K-12 students (Picciano et al., 2012; Watson et al., 2015). Some of these reasons were improved access to courses, accelerated learning, learning at a slower pace if needed, flexibility to mediate conflicting interests or barriers, and meeting the unique needs of underserved students. Many students appreciate the freedom and autonomy offered by virtual courses (Rice, 2006).

The satisfaction theme constituent convenience of learning at home was not found in the review of literature.

The last constituent of the satisfaction theme immediate response from the virtual teacher was related to Schunk (1989), claiming short-term, proximal goals operationalize self-motivation with immediacy of feedback.

Discussion of Dissatisfactions Focus Areas and Divergent Dissatisfactions

A common dissatisfaction theme did not emerge from the data analysis. However, through higher levels of abstraction, three focus areas were (1) focus on
constant demand to complete schoolwork, (2) difficulties communicating with teachers and peers, and (3) virtual clubs unrelated to my interest.

The focus on constant demand to complete schoolwork was shared by a participant from Green (2013). According to Green (2013), the participants of the study felt they were well prepared for college due to already mastering time management skills as virtual high school students. Although the finding was considered a strength, the statement from Green (2013) supported the dissatisfaction of one participant in this study regarding the constant demand to complete schoolwork. A participant from Pleau (2012) stated the need for self-discipline, “Virtual schooling is great if you are able to discipline yourself and make sure you get a certain amount of work done each week … if you do not get the work you will fall behind in the course … if you do not submit your work each week you can get suspended or even dropped from the class, and that goes on your transcript (p. 59).

The focus on difficulties communicating with teachers or peers was related to a finding from the USOE meta-analysis of K-12 online learning. According to the study, providing guidance for learning for groups of students appears less successful than does such mechanisms with individual learners (Means et al., 2009, p. xv). In other words, the use of cooperative group activities may impede flexibility to work at an individualized pace. Another issue of cooperative learning may be the exposure of relative task abilities among the students. (Richardson & Newby, 2006.) According to Miltiadou and Savenye (2003), suggest performance goals incorporated in cooperative group instruction may negatively impact learners experiencing helpless responsiveness without safeguards in
place. A study by Swan (2001) found, “The greater percentage of course grade that was based on cooperative or group work, the less students thought they learned from the course” (p. 326). Difficulty with collaboration was a disadvantage emerging from the virtual school students in Pleau’s (2012) study. Several of the students mentioned the difficulty in collaborating with other students. Lastly, difficulty in communicating with the teacher was considered to be an immediacy issue in this study. Two related studies addressed the immediacy needs of teacher feedback in the review of literature. Swan (2002) reported immediate teacher feedback as an effective online practice fostering independent learning and flexibility.

The dissatisfaction of virtual clubs unrelated to my interests was not found in the review of literature. However, social support or relatedness for online students was deemed important in the review of literature. Steese et al., (2006) suggested relatedness as, “The experience or the perception of being cared for, valued, included, and/or guided by others, especially one’s family, peers, and/or community members (p. 60). Peer support may be a potential source of external motivation for club settings reported in the virtual school setting.

Another study from Dabbagh and Kitsantas (2011) suggest an increase in the use of social media for formal and informal learning starting out as an individual platform known as a Personal Learning Environment (PLE). Dabbagh and Kitsantas (2011) recommended instruction in the use of social media or Web 2.0 technologies for learning was important in school settings.
Only one study from the review of literature was related to the *divergent
dissatisfactions*. A dissatisfaction with lag time in receiving feedback from the teacher was reported by a single participant (Pleau, 2012). The remaining dissatisfactions were not found in the review of literature.

**Limitations of the Study**

Some limitations of the study were recognized prior to the research agenda. These limitations were known characteristics of phenomenological studies such as (1) small sample size, (2) bracketing the researcher’s presuppositions, (3) epistemological position, (4) establishing reliability and validity, (5) interviewing capabilities of the participants, (6) gender, cultural, and situational differences, and (7) avoiding generalizations outside of the study group.

Sample size in this study was limited to six participants including the pilot study. Only five participants were in the base study, which was an ideal number for phenomenological studies. A larger pool of participants was beyond the researcher’s capabilities to conduct the study. Excluding the pilot study, over nine hours of voice recordings were produced and nearly 150 pages of text in the form of a script.

Bracketing presuppositions was a challenge since the researcher was intimately linked to the establishment of the virtual school prior to retirement as district administrator. However, two years separated the employment relationship with the district, which acted as a source of relief while collecting the data and conducting the data analysis. Hence, the prior relationship may be a limitation in an effort to bracket
presuppositions. The results of the study had no impact on the researcher’s current relationship or future involvement with the district.

Another limitation was the separation of data collection and data analysis based on the phenomenological orientation being descriptive or interpretive. These epistemological differences required two separate interviews with each participant. The first set of interviews incorporated descriptive phenomenology, where the researcher strived to maintain the voice of the participant as given. The presuppositions of the researcher were bracketed to understand the essences of a phenomenon originating in the consciousness of the participant. The second interview incorporated the interpretive method, which invited presuppositions of the researcher to interpret the experience given by the participant. Hence, the interpretive findings reflect the shared voice of the researcher and the participant. The presuppositions of the researcher may be theories or schemas perceived to have explicative value. A limitation was to maintain the proper attitude and decisions fitting the descriptive approach or the interpretive approach in phenomenological research. The researcher elected to keep the data collected from the two sets of interviews separate throughout the entire study. The separation of interpretive and descriptive data was a delimitation of the study.

Reliability and validity was a challenge in building trust and credibility with the research community. In this study, reliability had a dual meaning. First, reliability was considered to be linked to the honesty of the students’ descriptions of experience. The researcher was not aware of any attempts by the adolescent participants to misrepresent themselves. Secondly, reliability depended on the results being warranted by the data
collection. The large amount of data collection was shared in an effort to be transparent with the reader. However, it was not considered practical to share nearly 150 pages of interview transcripts for complete transparency.

Validity was established using multiple methods to have a more balanced view of the data. The first multiple method included the comparison of two data sources. These date sources were (1) written autobiographies/five-day journals and (2) the interview transcripts. The limitation in cross-validating the two different data sources revealed a large variance in the quality and quantity of the students’ self-authored exercises. The autobiographies ranged from one or two hand written sentences to a full-page of double-spaced typed text. The full-page typed autobiography may have been the combined work of the participant and parent, which may be considered as a strength or weakness depending on the origin of conscious thought stemming from the participant rather than the parent. In all cases, regardless if the written accounts were brief or relatively lengthy, the participants self-authored descriptions were consistent with the personalities, abilities, and temperaments witnessed during the interviews.

The researcher was not aware of any limitations related to the second observer. The second observer or triangulation analyst forced the researcher to consider how to present the large volume of data in a more concise manner without bias. Another challenge was maintaining the details leading to the creation of codes, code clusters, identification of patterns or constituents of experiences, and construction of themes. The latter challenge included the reductions of themes thorough higher levels of abstraction while maintaining concrete descriptions of experience. Any of these tasks may be a
strength or a weakness of the study based on the constant challenge of being objective rather than subjective during the data analysis.

In most cases, the researcher was speaking the majority of the time during interviews. The challenge was to guide the participant to recall their experiences using their own thought processes. The researcher discovered the nature of the interview being similar to the talk-aloud comprehension strategy used in reading instruction. In other words, the participant was asked to express what they were thinking aloud seeking meaning attached to the words they used in their descriptions. The researcher would often restate their words or closely paraphrase what they were saying and ask if the retelling of their experience was accurate or not accurate. A limitation was the capabilities of the participant to engage in conversation and their limited use of metaphors and examples of experiences. The descriptions tended to be literal in what was present and how it was experienced rather than exposing personal meanings and conceptual thought processes.

There may have been limitations due to differences such as gender, cultural/social backgrounds, and situational factors. Excluding the pilot study, a gender imbalance was three females and two males as participants. The breakdown by race/ethnicity was Multiracial (1), African American (2), and White (2). The past school-type experiences were two from traditional elementary schools, and three from home school or having other prior out-of-state virtual school experiences. The situational differences that may have impacted the interviews were special education (1 participant), autism/speech disorder (1 participant), diagnosis of photosensitive epilepsy (1 participant), and
aggressive/impulsive behavior (1 participant). The researcher was not aware of any situational differences impacting the study.

Generalization outside of the study was not recommended as the contexts and other factors impacting human behavior cannot be ascertained by the researcher.

**Strengths and Weaknesses of the Study**

A strength of the study was the use of two different phenomenological methods. The descriptive method was initiated first to maintain free-thinking of experiences originating in the consciousness of the participants. The interpretive method complemented the descriptive method by adding more information to better understand motivational aspects of middle-adolescents in a home-based educational setting. Therefore, the descriptive study was not tainted by the theoretical application of SDT in the first interview. The interpretive study was indifferent to the previous data collected from the descriptive data as the participants were not coerced or asked to speak about experiences from the first interview. The second interview began with the participants’ five-day journal of satisfaction experiences and dissatisfaction experiences. Hence, these experiences were not lived-through at the conclusion of the first interview.

A weakness of the study may have been the use of virtual school myths, which appeared to influence the development of a descriptive theme. The common theme, socialization occurs in the home, community, and during voluntary participation in virtual school activities included a constituent, dispel socialization myths. The researcher decided to guide the participants to confront the socialization myths which may be argued as improper use of a presupposition. The decision was due to the researcher’s concern to
collect sufficient data with psychologically sensitive meaning. Much of the data collected early in the first round of interviews appeared to describe how an experience was *lived-through* and little about why the experience was important to the participant.

**Implications of the Study**

Little is known about middle adolescent virtual school experiences from the perspective of the students themselves. The primary implication for the study was the informative value of the experiences expressed by middle school students in a particular virtual school. The information presented in this study offered deep and rich descriptions of virtual school experiences from descriptive and interpretive standpoints. The descriptive study focused on the essences of experience including supportive family structure, LMS system, assessment options, capabilities for independent learning and flexible pacing, interactions with teachers and peers, depending on the learning coach for in-home assistance, academic challenges, and socialization experiences. From and interpretive standpoint, the five adolescent students shared some satisfactions and dissatisfactions of their personal virtual school experiences. The implication from the interpretive study was the potential value of learning about various support needs necessary to improve self-regulation in the virtual school setting. Supporting the needs for competence, autonomy, and relatedness were important in the developmental process of adolescents becoming more self-determined (Deci & Ryan, 2000). The findings from the study may be beneficial to prospective students/parents, virtual school teacher/administrators, local/state policymakers, and teacher preparation/continuing education programs.
Other implications identified from the phenomenological study may be beneficial to the virtual school program from a programming perspective. The seven implications were (1) the potential for virtual field trips, (2) exploring the possibilities of student input for field trips, student orientations programs, and virtual clubs, (3) strategies to improve socialization using discussion boards and chat sessions, 4) the use of in game-like virtual worlds or simulations to promote optional student-to-student discussions, (5) determining cooperative learning activities that complement rather than compete with independent learning and flexibility, (6) accessing the potential for student-led activities in performing arts clubs, and (7) personalization opportunities for students to demonstrate how the curriculum connects to outside interests using a variety of media options.

1. Beginning with the implication for virtual field trips, Richards, et al. (2012) suggested virtual field trips as an alternative to overcome obstacles encountered in conducting physical field trips. These obstacles were associated with planning and conducting field trips. The obstacle faced by middle school students was access to travel and supervision. Hence, the virtual school may consider video recording portions of the field trips with quotes from teachers, students and resource persons. The idea would be to show students what they missed rather than stifling the actual attendance of future field trips.

2. Student advisory groups were not examined in the review of literature. The implication would be further study of receiving student input adding a sense of belonging, pride, and ownership in their school. Potential topics might be field
trip trips, student orientation programs, and discussion of school policies and the student handbook.

3. Several studies discussed the value of socialization strategies to improve discussion forum and chat sessions. Swan (2002) reviewed cohesiveness, cooperation and other factors related to online learning communities. The study examined affective immediacy factors, cohesive indicators, and interactive indicators that may improve student satisfaction with online discussion boards. Training middle school students to effectively communicate online may be a valuable entering the sixth grade with the introduction of discussion boards.

4. Improving student engagement in the use of discussion boards was another implication from this study. Making discussion boards more engaging and meaningful was inspired by combining research from Lehmann and Chamberlain (2009) and Cheesbro and McMahan (2011). Research from Lehmann and Chamberlain suggested discussion boards incorporate an argumentative dialogue seeking a level of disagreement. The argumentative approach demands more in-depth study rather than the superficial commenting where everyone agrees with others. A level of safety might be added based on a conference paper from Cheesbro and McMahan (2011). Cheesbro and McMahan suggested the potential use of virtual worlds and avatars as a potentially new venue for human communication offering a wide range of experiences. According to Cheesbro and McMahan (2011), the projection of
one’s identity was conveyed through verbal and nonverbal symbol-using. “We individually decide if we will accept, reject, or modify the projections of the self-based on feedback we receive” (Cheesbro & McMahan, 2011, para. 7). The implication would be a discussion board following the journey of avatars in a virtual learning community designed for middle school age students, similar to a puppet play. Cautionary measures may include avoidance of performance goals and the privilege of participants to protect their identities. Furthermore, the virtual world debate would need to be respectful, open to multiple perspectives, and monitored by the virtual teacher or club leader, and optional for students providing a sense of autonomy.

5. Guidelines and best practices may be beneficial in resolving the conundrum between time needed for social learning and time needed for independent learning. Three studies in the review of literature valued social learning or collaborative learning between students online (Borup et al., 2013; Blazer, 2009; Swan 2002). However, some researcher found online students valued learning independently at their own pace and controlling when learning happens during the day (Holmberg, 1995; Nehr 2009; Pleau 2012; Tunison & Sackney, 2004).

6. Another implication was the potential for student-led activities, especially related to clubs. This implication was inspired by two of the participants in this study. The potential to showcase the talents and skills of members in performing arts, crafts, and hobbies might require equipment for posting
content to the LMS. Students direct, produce, and perform live and/or post their performance as a video recording. The contributions of students would be submitted to teachers in advance for meeting pre-determined standards and to receive technical assistance as needed. The student-led presentations would be voluntary and ungraded to improve the intrinsic appeal for interested students.

7. The final implication would be similar to student-led presentations in the performing arts clubs. However, the activities would link application of curriculum content to personal applications in the home or community. This implication may serve as an alternative for one or two graded assessments of a conventional nature. The personalized learning content would be equivalent to the learning objectives and point value compared to the conventional graded assessment. Personalized learning projects would be subject to pre-approval from the virtual teacher. The outcome would be aimed at personalizing the learning content with the internally self-regulated interests of the student.

Recommendations for Future Research

Parenting styles and parenting involvement appeared to be critical components of adolescent student success in the home-based virtual school setting (Gonzalez-DeHass et al., 2005; Liu et al., 2010; Marchant et al., 2001). In this study, all participants had the support of caring parents serving as learning coaches. In some cases, the parents were away from the home at times due to work obligations or other reasons. The adolescent students in this study were accompanied by family members when the parental virtual coach was away from the home-setting.
A need for future research stems from the learning coach’s role and how the effectiveness of learning coach may be improved when home or when away from home during the school day. According to the virtual school’s policy, the learning coach role may be assigned by the parent to a responsible adult. Guidelines and best practices for parental and non-parental learning coaches may be beneficial to adolescent students needing support in the home or other remote location.

A model instrument from Liu et al. (2010) examined four parental involvement mechanisms. These mechanisms were (1) encouragement, (2) modeling, (3) reinforcement, and (4) instruction. Research is needed to determine if the parental involvement mechanisms are useful in developing best practices among learning coaches. A guide for learning coaches may be tested to complement the research from Liu et al. (2010). Marchant et al. (2001) found “Parenting style, parental involvement teaching style, and school atmosphere change student’s view of learning… this work suggests students are internalizing the messages received from their learning contexts as early as late elementary/middle school years” (p. 515). The guide would potentially be useful to implement the parental mechanisms from Lie et al. (2010) in the home-based school settings. A supportive feature might be a discussion forum for learning coaches to make effective use of the parental involvement model from Liu et al., (2010) and the parenting style research from Marchant et al., (2001).

A survey is recommended to determine if a discussion forum of best practices of learning coaches was suited for third-party social media such as Facebook™ or incorporated into the virtual school’s LMS system. The best platform for a learning
coach discussion forum might be ascertained as part of the research agenda. Other options to build school-coach learning community should be explored based on input from the learning coaches.

The proposed research is important for two reasons. First, having access to a responsible adult acting as a non-parent learning coach may be necessary to fulfill psychologically sensitive needs for some students needing alternative school placement. In other words, students needing access to the virtual school may be denied without the presence of a responsible adult learning coach. Providing support for learning coaches may improve students needing access to the virtual school. Secondly, the non-parent learning coach and parent may need common language and understanding of the basic psychological needs of middle-adolescents for optimal outcomes and well-being.

**Conclusion**

The purpose of this study was to explore the personal meanings and motivational aspects of being a virtual school student in a particular virtual school. Two phenomenological methods were administered. Giorgi’s (2009) Descriptive Phenomenological Method in Psychology revealed 10 commons essences of being a virtual student in a particular school. The common essences structured three descriptive themes: (1) to the mutual needs of family members, (2) teacher-directed learning with parental in-home guidance, and (3) socialization in the home, community, and during voluntary virtual school activities. The descriptive study illuminated the participants personal meanings of their virtual school experiences, which were expressed in psychological terms. Secondly, Smiths’s et al. (2012) Interpretive Phenomenological
Analysis was administered resulting in a single satisfaction theme of *student freedoms, guided choices, and a sense of self-control*. SDT theory was applied to 10 randomly selected experiences to provide further insight into the motivation of each participant. The support for autonomy, competence, and relatedness were identified along with the student’s level of self-regulation.

The detailed and rich descriptions of lived experiences and self-regulation capabilities were expected to improve the readers understanding of virtual school preference for a small number of adolescent students and their parents.
REFERENCES


APPENDIX A

PARENTS AND STUDENT CONSENT FORM
PROTECTIONS AND PRIVACY RIGHTS OF PARENTS AND PARTICIPANTS

Dear Parent and Student Participant, (use actual names)

Please read the protections and privacy rights of parents and student participants contained in this document. Your agreement to participate require signatures from you and your child (student participant) found at the end of the document. Please keep a copy for your records and return a signed copy to me using the enclosed self-stamped, self-addressed envelope. Thank you.

The purpose of this study is to improve understanding of what it is like to be a virtual school student and how the virtual school meets your needs. The title on my research is, “Exploring the Experiences of Adolescent Students Attending a Virtual School.”

The research study involves two audio recorded interviews (40 minutes each) in your home or other location if so desired. Your interviews should be scheduled one to two weeks apart.

I plan to interview five virtual school students from 7th and 8th grade. The children’s names and school site will remain confidential including any reference to others employed at the virtual school. Statements from the participants will be selected for publication in my dissertation and may be cited by others. I will use pseudonym names to protect the identity of all student participants. I will do my best to protect the identity of all participants, however; I cannot guarantee complete protection of your identity.

In addition to the in-home interviews, participants will be asked to complete three activities, which should be beneficial in the interview process. They are:

- Self-reported background survey questionnaire
- A one-page autobiography
- A five-day journal identifying daily satisfactions and frustrations with their school experiences.

I plan to collect each assignment during the interviews in your home. These materials will be used as a source of data for my study and serve as conversation starters during the interviews.

The student participant or parent may stop the interview at any time. Breaks are welcome. Withdrawal from the research study may be made any time until the study is published. As a courtesy, I would appreciate notice of withdrawal well in advance so an alternate participant may be interviewed in a timely manner.
As the parent, I need you to be present in the home during both interviews. Your role is to be a neutral bystander, and your presence is intended to add comfort and security to me and your child in your home.

I am obligated to inform you of the following information according to the University of Northern Iowa’s Research of Human Subjects Policy:

- Your participation is voluntary.
- There are no school penalties, benefits, or remedies for discomforts or pain due to your participation in the study.
- Following completion of my research dissertation, all audio recordings, email files, and paper documents will be destroyed to maintain confidentiality.
- I am required by law to report suspected child abuse.
- The University of Northern Iowa’s Human Participant Review Board has approved these rights and protections (IRB file #15-0202).
- You may contact the office of the Human Participants Coordinator at 319-273-6148 for answers to questions about rights of human participants.

A $30 gift card is provided to each student participant following the second interview. I plan to provide a popular debit card that may be used for a wide variety of purchases. The gift card is compensation for time spent during interviews and completing the self-reported background questionnaire, the one-page autobiography, and five-day journal of satisfaction and frustration experiences.

Parent and Student Participant Signatures of Consent to Participate in Research Study, “Exploring the Experiences of Adolescent Students Attending a Virtual School.”

(Signature of the parent/legal guardian)     (Date)

(Signature of the student participant)     (Date)

(Signature of the researcher)     (Date)

Allan Nelson, Researcher
University of Northern Iowa
Educational Leadership Doctoral Candidate
Contact Information:
Resident address:
APPENDIX B

PARENT BACKGROUND INFORMATION QUESTIONNAIRE

My Name _______________________________, Date ______________________

Note: Your name will be changed to maintain privacy.

1. My gender is:
   a. ___ Male
   b. ___ Female
   c. ___ No response

2. My grade level is:
   a. ___ Grade 7
   b. ___ Grade 8

3. My race/ethnicity is (optional)
   a. ___ White
   b. ___ African-American
   c. ___ Hispanic
   d. ___ Asian
   e. ___ Native American
   f. ___ Pacific Islander
   g. ___ Multiracial

4. My learning coach is:
   a. ___ my mom
   b. ___ my dad
   c. ___ my mom and dad
   d. ___ other: Please describe relationship ______________________________________
   e. ___ No response

5. What type of school did you attend prior to joining the virtual school?
   a. ___ Traditional K-12 public school
   b. ___ Home School (Competent Private Instruction)
   c. ___ No response
6. How many years have you been enrolled in the virtual school (including the current year)
   a. ___ 1 year
   b. ___ 2 years
   c. ___ 3 years
   d. ___ 4 years
   e. ___ 5 years
   f. ___ 6 years

7. How would you describe your overall average academic grades as a student?
   a. ___ I usually earn A’s in my courses.
   b. ___ I usually earn A’s and B’s in my courses.
   c. ___ I usually earn B’s in my courses.
   d. ___ I usually earn B’s and C’s in my courses.
   e. ___ I usually earn C’s in my courses.
   f. ___ I usually earn C’s and D’s in my courses.
   g. ___ I usually earn D’s in my courses.
   h. ___ No response

8. Have you ever attended a different virtual school before?
   a. ___ yes
   b. ___ no
   c. ___ No response

9. Have you ever taken online courses before entering the virtual school?
   a. ___ yes
   b. ___ no
   c. ___ No response
An autobiography is a true story about experiences you have had in the past. Your autobiography may be up to one page in length, more or less if you prefer. Please write your response using a separate sheet of paper or type your response using the computer. You will be asked to read your autobiography at the beginning of your first interview. Your reading will be used as a conversation starter. We will begin the interview by discussing your autobiography and later explore more experiences you have had in the virtual school. Please provide a copy of your autobiography to Mr. Nelson any time during the first interview. Your name and the names of others in your autobiography will remain confidential. A guiding question and helpful hints follow. There is no right or wrong answer to your autobiography. This assignment is your story about life as a virtual school student.

Guiding question: Please recall an experience you had in the virtual school that describes what life is like as a virtual school student? You only need to write about one experience you have had in the past. However, you may write about more than one experience if you wish.

Helpful hints: Consider how the experience happened, who was present (physically or virtually), the importance or value of the experience, why the experience happened, and does this experience happen often or rarely as a virtual school student.
APPENDIX D

FIVE-DAY SATISFACTION AND FRUSTRATION JOURNAL
(Your name and the names of others will remain confidential)

You may print copies as needed or enter your responses as a continuing script. Please indicate the date of each journal entry.

You will be asked to read your five-day journal during the second interview as a conversation starter. Mr. Nelson plans to ask follow-up questions to further understand your experiences of satisfaction and frustration during the interview.

Today, I felt most satisfied with the experience of … (please describe what took place and what you were doing at the time, why this experience happened, and if others were present physically or virtually)? Please enter date before each entry.

Today, I felt dissatisfied or frustrated with the experience of … (please describe what took place and what you were doing at the time, why this experience happened, and if others were present physically or virtually)? Please enter date before each entry.
APPENDIX E

NOTICE OF DISCUSSION QUESTIONS AND PROCEDURES
FOR PARENTS AND PARTICIPANTS

Please treat our interview like a conversation. I will ask questions about experiences you had as a student in the virtual school. You are welcome to ask me for help with the questions and discuss what you might include in your response.

Starting the discussion:
1. I will introduce myself and remind you of the purpose of the study, my role in the study, your rights to privacy, and ask if you are ready to begin.
2. The interviews will be audio recorded and converted to text verbatim. This procedure will allow me to listen rather than take time writing notes. Each interview is scheduled to take up to 40 minutes.
3. We will begin the interview like a conversation. I will ask you to read your one-page story (autobiography) at the beginning of the first interview. I plan to follow-up with questions to explore your experiences as a virtual school student. The second interview begins with a discussion of a five-day journal of your daily satisfactions and frustrations as a virtual school student.
4. I will bring paper for note taking. Writing notes might help us both explore the meanings of the words used in your descriptions. I might ask, “What did you mean by saying______? We can explore your meanings together.
5. You will receive a $30 gift card following your second interview. The gift card is for your time interviewing, completing the background survey, and writing the two pre-interview activities (autobiography and journal).

What will the questions be like?
All of the questions will be related to one basic question, “How do virtual school experiences meet your needs?”

Helpful Hints:
1. Parents are welcome to be present during our discussion time together. The parent’s role is to observe and not enter into the discussion (neutral bystander). Your parent should be available to either of us as a source of comfort and support.
2. The interview is audiotaped. Please think about a place where I can set my audio recorder without too much background noise.
3. Please be relaxed and have fun. I am interested in hearing about your experiences in the virtual school.
### APPENDIX F

#### PHENOMENOLOGICAL REDUCTION WORKSHEET
(Descriptive Phenomenological Method in Psychology)

<table>
<thead>
<tr>
<th>Meaning Units</th>
<th>Phenomenological Reduction</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>• (/) Indicate transitions in meaning.</td>
<td>• Seek conscious acts of meaning.</td>
<td>• The researcher intuits the transformational acts into psychological statements.</td>
</tr>
<tr>
<td>• Number each meaning unit (MU#)</td>
<td>• Explore and identify objects necessary for the meaning to be experienced.</td>
<td>• Remove redundant structures.</td>
</tr>
<tr>
<td>• Remember, the meaning units carry no theoretical weight, only a shift in meaning.</td>
<td>• Use free imagination to seek invariant structures of the experience (essences).</td>
<td>• Describe the psychological structure in common psychological terms, avoiding the jargon of mainstream psychology.</td>
</tr>
<tr>
<td>• Change raw text descriptions to third person as a reminder of the researcher’s perspective.</td>
<td>• Consider horizontal aspects of the given meaning (search for implicit, non-given aspects of the objects.</td>
<td>• Support psychological descriptions of experience with raw data extracts and meaning unit number(s).</td>
</tr>
<tr>
<td>• The purpose of MU transitions is to manage the large volume of data.</td>
<td>• Acts are not reduced, or only partially reduced seeking precise descriptions of the act. The researcher intuits the fulfillment(s) of psychological needs within the framework of the study.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Repeat process of eidetic reduction (real and abstract objects) and the intentional actions of the individual pursuing a psychological purpose.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Use a separate worksheet for more space.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Organize findings by MU#.</td>
<td></td>
</tr>
</tbody>
</table>

| Participant #1 MUs | Notes and comments. Code and theme creation by participant. Link to MU numbers. | Psychological significance of experiences using non-technical jargon by participant. Link to MU numbers. |
| Participant #2 MUs | | |
| Participant #3 MUs | | |
| Participant #4 MUs | | |
| Sum total MUs (continuous number from first participant through last participant). | | |

Adapted from Giorgi (2009).
## PILOT STUDY SEMI-STRUCTURE INTERVIEW QUESTIONS

### EVALUATOR’S NOTES

<table>
<thead>
<tr>
<th>Evaluative Questions</th>
<th>Researcher’s Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What was your comfort level during the interview? How might I improve your comfort level?</td>
<td></td>
</tr>
<tr>
<td>2. Did you feel some of the questions were troublesome? Which questions do you suggest avoiding? Are there other types of questions you feel should be asked?</td>
<td></td>
</tr>
<tr>
<td>3. Were the short probes and prompts helpful? Did you feel I listened to you and followed up in what you had to say?</td>
<td></td>
</tr>
<tr>
<td>4. How would you describe the external cues (i.e., autobiography assignment, five-day satisfaction – frustration journal, four square concept-map, pointing to something – pointing at the meaning tool, and the pluses and wishes graphic organizer)? Did any of these tools help you remember things?</td>
<td></td>
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<tr>
<td>5. Did you find reading the questions on paper and discussing the question before your responses as helpful (i.e., think aloud strategy)?</td>
<td></td>
</tr>
</tbody>
</table>

(table continues)
<table>
<thead>
<tr>
<th>Evaluative Questions</th>
<th>Researcher’s Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. How did you feel about the audio recording procedure? Does it make you nervous?</td>
<td></td>
</tr>
<tr>
<td>How might the procedure be improved?</td>
<td></td>
</tr>
<tr>
<td>7. Did you feel a need for a break at times to reflect on your experiences? Do long</td>
<td></td>
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<tr>
<td>pauses help you remember things, or do long pauses create more anxiety for you?</td>
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</tr>
<tr>
<td>8. Parent question: How might I improve interaction with your child, especially to</td>
<td></td>
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<tr>
<td>seek out rich descriptions of past experiences in the virtual school?</td>
<td></td>
</tr>
<tr>
<td>9. Do you have any other suggestions that might be helpful in describing the</td>
<td></td>
</tr>
<tr>
<td>experiences of virtual school students and how their learning needs are being met?</td>
<td></td>
</tr>
</tbody>
</table>

Questions 1-7 are directed to the participant. Question eight is directed to the parent. Question nine is directed to the participant and parent.
### APPENDIX H

**RESEARCHER’S SELF-EVALUATION OF INTERVIEWS AND CONTENT FROM THE PILOT STUDY**

Self-evaluation of the Interviews

<table>
<thead>
<tr>
<th>Self-Evaluation Questions</th>
<th>Researcher’s Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What was the most effective part of your interview and why</td>
<td></td>
</tr>
<tr>
<td>2. How could your performance as an interviewer have been improved?</td>
<td></td>
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<tr>
<td>3. What was the most difficult thing about the conducting the interview?</td>
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<tr>
<td>4. In your own research, what will you need to work on to be an effective interviewer</td>
<td></td>
</tr>
</tbody>
</table>

Self-evaluation of the Content Gathered from the Interviews

<table>
<thead>
<tr>
<th>Self-Evaluation Questions</th>
<th>Researcher’s Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What have you learned about your research question from the participant’s answers?</td>
<td></td>
</tr>
<tr>
<td>2. What kinds of knowledge have you had access to?</td>
<td></td>
</tr>
</tbody>
</table>