THE EFFECTIVENESS OF DISTANCE EDUCATION IN A SMALL RURAL HIGH SCHOOL: A PHENOMENOLOGICAL STUDY

by

Roger Dale Dunnick

Liberty University

A Dissertation Presented in Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

Liberty University

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ABSTRACT

THE EFFECTIVENESS OF DISTANCE EDUCATION IN A SMALL RURAL HIGH SCHOOL: A PHENOMENOLOGICAL CASE STUDY. Roger D. Dunnick, The effectiveness of distance education in a small rural high school: A phenomenological case study (under the direction of Judy Shoemaker, School of Education, Liberty University, March, 2011).

The purpose of this phenomenological study was to identify the predominant format, benefits and challenges of distance education at the target school as perceived by multiple groups of stakeholders. Important in identifying the above categories were gaining an understanding of the reasons behind participant perceptions as well as the reasons for the current format of distance education at the target school. Additionally, the stakeholders were queried as to their beliefs as to what would improve distance education at the school.

Results from this study included the participant’s perception that college preparedness offered the greatest benefit, technology issues posed the greatest challenge and, courses offered were predominantly asynchronous in format and offered for college credit. Stakeholders believed that distance education at the target school should be expanded. Expansion of the program should include more high school level courses according to participants.

Key words: distance education, synchronous format, asynchronous format, hybrid format
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CHAPTER 1: INTRODUCTION

Public schools in Virginia, including those described as “rural,” face the same challenges that rural schools across the country are forced to address (Palaich, Augenblick, Silverstein, & Brown, 2005). Funding and the hiring of highly qualified teachers tend to be the major issues that rural schools face (Jimerson, 2005). Distance education (DE) is often seen as a bridge to the solution of both of these problems. DE today, mostly in its electronic form, can be used to provide access to highly qualified teachers as well as reduce the cost incurred in providing valuable classes to limited numbers of students. There are barriers, however, associated with the use of DE in rural secondary schools. These barriers are most often linked to time and/or financial resources (Bral, 2007). This study is designed to investigate the current pattern of usage of DE at a rural Virginia secondary school and identify potential barriers to the incorporation of this form of instruction.

Problem Statement

The problem is that though distance education may be a viable alternative or addition for many rural high schools in Virginia, there are also many obstacles in establishing and maintaining a DE program that must be overcome to ensure success. Funding for DE has proven to be a major challenge across the United States (Bral, 2007; Hannum, Irvin, Banks, & Farmer, 2009). In addition, fulfilling the federal mandate of hiring and retaining “highly qualified” teachers is particularly difficult for rural schools (Hannum et al.). Many rural school districts serve populations classified as moderate or highly poor, and these areas are not attractive for many teachers. The lack of potential
income, professional isolation, as well as social isolation of many rural districts pose hurdles not only in hiring but also in retaining highly qualified teachers (Bryant, 2010). In Kansas, for instance, only 15 of its 165 rural districts had 100% highly qualified teachers (McClure, 2006). As early as 2006, schools in Maine were using DE to fulfill the requirement of having highly qualified teachers in each classroom (McClure). The level of rigor in DE courses and even pupil attendance for state funding (in addition to the challenges mentioned above) also present significant obstacles to DE implementation and are each issues currently being dealt with by rural school leaders wishing to take advantage of DE to supplement the curriculum at their schools (Matuga, 2009; Picciano & Seaman, 2007).

The target school has demonstrated some success in expanding its curriculum with the use of DE and therefore has been chosen for this study. For instance, the target school has annually expanded its DE course offerings to students, most recently to include AP Art History. During the summer program following the 2010-2011 school year, the target school piloted a new credit recovery program purchased through a local vendor. Nine students were given the opportunity to recover credit in English, Geometry, and World History. Additionally, students at the school for the past two years have been introduced to Aleks, an online math tutoring program designed to boost standardized test scores. The target school purchased 100 site licenses for the online tutoring program with the intent of expanding its usage for the 2011-2012 school year. The target school renewed the licensing deal for the 2012-2013 year but has since added the free online resource known as the Khan Academy and will no longer use Aleks. Somehow, the target school is managing to overcome the barriers that research shows are present for rural
secondary schools attempting to implement DE.

**Purpose of the Study**

The purpose of this phenomenological case study is to provide valuable information to educational leaders (as well as other stakeholders in rural secondary education) to assist in making vital decisions regarding the implementation of DE in rural Virginia secondary schools. It has been demonstrated that DE poses great potential in solving many problems faced by rural schools. Problems such as hiring and maintaining highly qualified teachers and providing an adequate array of advanced courses can be alleviated by the use of DE as part of a school’s overall curriculum (Hannum et al., 2009). A product from this study will be a set of guidelines for implementing successful and sustainable DE programs in schools similar to the target school. Furthermore, little research exists that compares the desires of parents and students regarding DE with the DE decisions that are made by educational leaders, including local school boards. This project is designed to add valuable insight into this area as well.

**Focus and Intent**

Since 2005, virtually all public schools in the United States have been linked to the Internet (NCES, 2007). A large percentage of these schools, 97%, are connected via broadband which enables most to provide Internet access in classrooms (NCES). Rural schools in America, in fact, have a greater percentage of their instructional classrooms hooked up to the Internet than their urban counterparts: 95% and 88% respectively (NCES). These numbers indicate that for rural schools, the basic infrastructure is present to support DE in the online format.

In March of 2012, the General Assembly of Virginia passed HB 1061, a law that
requires students entering high school in 2013-2014 to take at least one virtual course towards completion of either a standard or advanced studies diploma (General Assembly of Virginia, 2012). For all secondary schools in Virginia, this means that whether they have embraced DE at this point or not, they will now have to provide a means for their students to meet this new requirement. Simply put, distance education is no longer a choice but a mandate. Furthermore, in support of their Early College Scholars program, the Virginia Department of Education implemented in 2008 the Virginia Plan for Dual Enrollment between Virginia public schools and community colleges, which was designed to provide more college level courses for high school students who demonstrate an ability to be successful with more challenging coursework (VDOE, 2008). Distance education can reasonably be expected to play a key role in the connection of Virginia community colleges and Virginia secondary schools in support of students wishing to advance in their studies and take higher level courses.

Advances in modern web-based software and connectivity have led to greater opportunities for communication and collaboration through the DE process. Web 2.0 technologies, such as podcasts, wikis, and blogs have enabled greater collaboration in the field of DE (Boulos, Maramba, & Wheeler, 2006). These technologies are often easier to make use of because many are available at no cost on the web (Boulos et al.). Web 2.0 software also offers the opportunity to share videos and pictures and to participate in social networking (Solomon & Schrum, 2007).

The world that students face today is ever-changing, as is the role that schools play in preparing students. Solomon and Schrum (2007) stated, “the challenges of the new millennium require that students be adaptable and analytical and that they have the
skills to identify and use the best tools in a rapidly changing environment” (p. 1). In *The World Is Flat*, Friedman (2007) exclaimed that the advent of the ability of the average person to upload information to the web, among several other factors, has had a leveling effect on the power base of the world. American students are competing not just with students in their own country, but as Friedman pointed out, they are competing against students all over the world who have the technology skills that make them employable to international companies, including those from the United States (US). Therefore, the American student—the Virginia student—must be taught to compete in this ever flattening world. Distance education, and the technologies used in its execution, most certainly will play a role in the preparation of the modern student for the modern world.

Rural schools in the US and in Virginia, in particular, cannot afford to fall behind in preparing students for the world that is out there after graduation. Many rural schools do in fact participate in distance education. Hannum et al. (2009) found in a national study published in 2009 that 85% of rural schools studied had participated in DE at some point. As encouraging as that statistic appears, only 69.3% of rural schools were currently using distance education to support their curriculum (Hannum et al.). As reported by the National Center for Education Statistics, for the 2009-2010 school year, there were 1.3 million high school students enrolled in DE courses across the United States (Aud et al., 2012). Just five years prior, the number of high school students taking DE courses was only 20% of that at .3 million (Aud et al.).

Though the NCES reports on rapidly increasing enrollment in high school DE, several factors were listed by Hannum et al. (2009) as barriers to implementing distance education. Among the barriers found by Hannum et al. were funding, district policy,
scheduling conflicts, and expertise (Hannum et al.). Bral (2007) found funding and administrative barriers to be obstacles as well but also discovered that at rural schools in Nebraska, Iowa, and Missouri, there were technology issues that presented a real hindrance. Furthermore, Bral found that student motivation, legislative appropriation to rural schools, legitimacy and rigor of DE courses, and the alignment of DE courses to the school’s curriculum were noted by respondents as serious barriers. Overcoming these barriers poses real problems for rural schools in the United States as a whole as well as in the Commonwealth of Virginia.

**Situation to Self**

As a full time teacher at a rural high school in central Virginia for fifteen years, and currently in my fourth year in administration at the same school, I have a vested interest in the results of this research. In fact, the only full time educational work experience I have is at the target school. I am currently in a position to effect positive change in several areas for the school, and this research has the potential to be such change. My dilemma is identifying and refraining from personal bias. For this reason, I will keep a journal throughout the research and data analysis phases of the project in order to first assess any researcher bias and to lend credence to my claim of bias avoidance.

In addition to the potential of some professional bias on my part, I must also admit that I am a proponent of distance education. As a teacher at the target school, I also taught through the Blue Ridge Virtual Governor’s School in a distance learning format. I have completed both an M.Ed. and the coursework for an Ed.D. through Liberty University online. I have enjoyed each of these experiences and see the many
opportunities that distance education can provide for others, particularly the students at my school and other rural high schools. It is because of these reasons that I have chosen to investigate the reasons why distance education decisions are made by stakeholders at the target school. A second goal of this research is to discover measures that constitute best practice in establishing and maintaining a DE program for rural secondary schools. The conclusions drawn to this end will be shared with others interested in the form of guidelines designed to assist in making DE decisions.

Guiding Questions

To identify why and how the target school developed its current use of distance education, it is necessary to keep several key ideas in mind. First, it is important to understand exactly how distance education has been implemented over the last several years. Furthermore, it is important to note any obstacles that were faced, and subsequently overcome, while implementing DE at the target school. Benefits (real and perceived) from the use of DE for students, the target school, parents, and the school district are important in understanding why decisions are made with respect to DE. For these reasons, the following questions served as the guiding questions for this study.

1. What are benefits of DE usage at the target school?
2. What barriers exist(ed) to the implementation of DE at the target school, and how did the target school overcome identified barriers?
3. What is the structure of DE at the target school (i.e., format, course providers, patterns of usage, and program evaluation measures)?
4. What suggestions do stakeholders have for improving DE at the target school?
Key Terms

**Distance Education (DE):** “Experiences in which students and instructors are separated by space and/or time” (Cavanaugh, Gillan, Kromrey, Hess, & Blomeyer, 2004, p.5).

**Synchronous DE:** “Situations where the instructor and students all meet for class at the same time, but may be in different classrooms” (Midkiff & DaSilva, 2000, n.p.)

**Asynchronous DE:** “Different time, different place” learning, in which the instructor and students interact at a distance and not in real time (Midkiff & DaSilva)

**Hybrid DE:** Combining distance education delivery within a traditional classroom setting with the presence of an adult as a teacher and/or a facilitator (Hannum, Irvin, Pui-Wa, & Farmer 2008; Yudko, Hirokawa, &Chi, 2008).

**Web 2.0:** Software such as wikis, blogs, podcasts, video and picture sharing that allow for collaboration amongst users on the web (Boulos et al., 2006).
CHAPTER 2: REVIEW OF LITERATURE

Distance education (DE) in the United States dates back at least two centuries (Prescott, 2004). In its earliest form, DE amounted to correspondence through the US postal service between instructor and student. As technology advanced, DE included radio technology, television, and satellite connections in which students from various parts of the country could link with their teachers who were often thousands of miles away (Bernard et al., 2004). In the latter two decades of the twentieth century, technology had progressed to the point that students could take courses via the Internet (Prescott).

DE courses now enroll an ever-increasing number of secondary students (Aud et al., 2012). Approximately one million more high school students were enrolled in DE courses for the school year 2009-2010 (1.3 million) than there were just five years earlier (310,000) (Aud et al.). These courses can be delivered in synchronous, asynchronous, or hybrid formats, meaning that students have the option to participate in class either at the same time, at different times, or a combination of both. In addition, Web 2.0 software now enables students, their instructors, and their peers to collaborate in ways that have never before been possible (Beldarrain, 2006). Because of the advances in this technology, students can now interact in virtual real time, thus simulating the on-site classroom experience (Beldarrain).

According to the National Center for Education Statistics (2007), 97% of public schools in the United States are connected to the World Wide Web via broadband. Furthermore, rural public schools have Internet access in 95% of their classrooms (NCES). As of 2008, there were 4,500 charter schools in the US and of these charter schools, 180 were virtual or online schools (Cavanaugh, Barbour & Clark 2009).
Distance education today offers a variety of advantages to all aspects of modern learning. Modern DE, predominantly in the electronic format, now allows schools the opportunity to offer courses to unlimited numbers of students when, in the past, this may not have been feasible. Schools with smaller enrollments now have the opportunity to offer many of the advanced courses that they could not previously offer (Hannum et al., 2009). Students in schools that offer a variety of DE courses to supplement their curriculum may also be able to take elective courses that they otherwise would not have had the opportunity to do (Hannum et al.). A number of studies have reported that students who take DE courses via the online format perform at least as well as, and in some cases better than, their counterparts taking classes in the brick and mortar classroom (Revia, 2010; Sheppard, 2009, Torain, 2009). Some studies even point to learning opportunities being equivalent when comparing courses delivered online versus those delivered in the more traditional, face-to-face format (Lapsley et al., 2008; Weber & Lennon, 2007).

As advantageous as DE appears, there are several factors within the discussion of supplementing instruction in this format that present themselves as real barriers to implementation. Hannum et al. (2009) demonstrated funding as a potential barrier for rural schools across the country to include DE courses in their curriculum. Bral (2007) also found money to be a key issue when small schools in the Midwest were deciding to implement DE as part of their course of study. Traditional attitudes against change in this way and technology issues also pose real hurdles for school districts when considering DE (Bral).

A separate challenge for developing an understanding of DE is that much of the
research until recently has dealt largely with students at post-secondary institutions (Cavanaugh, Barbour & Clark, 2009). Most of the studies that were conducted until 2007 were on graduate students and their satisfaction levels with DE across varying circumstances, and the greater portion of those studies were descriptive in nature and not relevant in developing DE theory (Davies, Howell & Petrie, 2010). According to Davies et al. (2010), later studies on DE have moved away from satisfaction surveys and comparisons between online and brick and mortar courses, but it remains that little research exists with respect to DE in secondary schools.

By 2007, online enrollments for students in grades 9-12 had reached 1 million students (Christensen, Horn, & Johnson, 2008). It has been predicted that by 2016, the number of high school students enrolled in DE courses could be between 5-6 million students (Picciano, Seaman, & Allen, 2010). This increase in the use of DE at the secondary level, coupled with the real budgetary restraints of rural schools in America to creatively meet the needs of all of their students, relatively ensures that if a transformation of DE in secondary schools is to take root in the US, this transformation will likely take place in rural schools (Picciano et al.) The potential benefits of DE at the secondary level are driving the push to move in this direction.

**Traditional, Distance, and Hybrid Education**

Over the course of time, a multitude of projects have reported that there are no real differences in achievement between students who take courses in a traditional, face-to-face setting and those who receive their coursework via DE (Russell, 1999). In addition, Allen et al. (2004) found that DE demonstrated slightly better results than traditional face-to-face courses in student achievement. Allen et al. declared that even if
no significant gain could be found in their study when comparing DE courses to those delivered in the traditional format, there was also no clear decline in achievement for students taking courses via the DE method (Allen et al.). The study concluded, however, that because the reviewed studies were not homogeneous, no clear determination between the two formats could be made (Allen et al.).

More current research demonstrates the same type of mixed results when comparing achievement and course satisfaction for traditional and distance education students. Torain (2009) tested 66 undergraduate students and found that there were no statistical differences in results on unit tests or final grades between a group that had taken a course online and another that had taken the same course in the traditional, brick and mortar format. In Torain’s study, the same instructor taught both sections of the course. Similarly, when Advanced Placement test scores were compared between students in Virginia who took AP courses through the Virtual Virginia program with those who took the courses in the traditional method, the scores were similar (Reviea, 2010). Furthermore, when surveyed, students and local school administrators from the Virginia’s Virtual Virginia program responded that they were satisfied with the Virtual Virginia courses and program (Reviea).

A Sheppard (2009) study compared high school students in rural and urban settings taking chemistry and physics courses in both the traditional and online formats. In this study, Sheppard found that when comparing achievement results of students taking the courses online in rural areas with those taking the same courses in the more traditional classroom in the urban setting, there was no statistical difference in achievement. However, when only comparing students in rural and urban areas who took
the science courses via the traditional, classroom format, urban students showed greater achievement (Sheppard). This, according to Sheppard, lends evidence to a rationale of using DE in rural areas to help close the achievement gap between rural and urban students.

As demonstrated in the Sheppard (2009) study, the results when comparing DE to traditional education are not all commensurate. Recently, some studies have shown that face-to-face instruction has greater benefits for students than the stand alone, DE approach. In a study that compared college-level remedial English students, Carter (2012) found that students who took the course in the traditional format performed better than their DE counterparts. Carter did find, however, that when assessing the rate at which students exhibited higher order thinking skills along Bloom’s taxonomy, DE students out performed traditional students. Karataas and Simsek (2009) found that not only did the face-to-face students perform better in initial achievement testing, these students also showed a higher level of permanence of learning when given post-tests. Master’s level students who participated in a Ferguson and Tryankowski (2009) study showed similar performance results with face-to-face students achieving at a better rate than DE students.

The lack of technology skills poses some tribulation for master’s level students taking online courses (Ferguson & Tryankowski, 2009). According to Ferguson and Tryankowski, it is important to pre-assess the technological abilities of students taking online courses. The researchers suggested that a screening system, administered either by the school, the professor, or by the student, enlightened all involved as to the student’s predisposition to success based on several of the following factors gleaned from a pre-course screening: preferred learning styles, organizational issues, study
habits, motivational issues, and the ability to communicate effectively in an online course. Ferguson and Tryankowski also suggested that instructors work to ensure that a high level of community is present in their courses as they believe that this too relates to student success in online courses.

Though there is some support for both the traditional and DE course designs, some believe that a blended, or hybrid, approach will produce the best results (Ge, 2012; Hannum, Irvin, Pui-Wa, & Farmer 2008). Though hybrid models vary from a teacher/facilitator in a set classroom to multiple teachers located virtually anywhere, the concept behind the hybrid approach is that elements of synchronous and asynchronous courses are blended (Doering, Miller, & Veletsianos, 2008; Hannum et al., 2008). In a common model, students are all present in a brick and mortar classroom setting in a school computer lab with an adult who is designated as a facilitator. In this situation, it is possible that all students take a different course via the online format (Hannum et al., 2008).

Advances in Internet-based teleconferencing have led to the synchronization of some previously asynchronous courses, resulting in higher student satisfaction amongst those students who classify themselves as having a greater level of social orientation (Stafford & Lindsey, 2007). In the case of an Adventure Learning course, the students and their teacher are connected with content experts anywhere in the world and complete an inquiry-based curriculum (Doering, Miller, & Veletsianos, 2008). This hybrid model promises a rich educational experience, according to Doering et al. Hannum et al. (2008), found that it was best to have a trained facilitator in the classroom with students taking DE courses. In their controlled study, Hannum et al. found that those students who
took a DE course with a trained facilitator performed at a higher rate and were more likely to complete the course than those students who had a facilitator in the classroom who had not been trained. Students have also noted the benefits of using technology as carried out in a hybrid model (Yudko, Hirokawa, & Chi, 2008). In addition, some students in the college setting reported that a hybrid model combining DE components with a traditional course has a negative impact on student attendance, but they were otherwise satisfied with the DE/Hybrid experience (Yudko et al.). Ultimately, public schools surveyed by Picciano and Seaman (2007) reported at a rate of 66% plans to increase their offerings of hybrid/blended courses.

With mixed results when comparing the achievement results of purely traditional, face-to-face students with those who take courses in a standalone DE format, some have suggested a blended or hybrid approach to DE may be the best of both worlds (Hannum et al., 2009; Ge, 2012). The hybrid approach has also been supported by the National Research Center for Rural Educational Supports as the best means to implement DE in rural schools (Hannum et al., 2009).

**Benefits of Implementing DE**

Many rural schools today take advantage of DE to offer Advanced Placement courses to their students that they may not have been able to in the past (Weldon, 2009). Because of a lack of qualified teachers, or a lack of students requesting particular AP courses at rural high schools, DE is seen as a viable alternative to meet the needs of advanced learners (Hannum et al. 2009). Others believe that one advantage DE has over traditional, on-site learning is the opportunity for higher quality courses (Cavanaugh et al. 2009). Cavanaugh et al. do admit, however, that higher quality courses are simply a
potential benefit that is dependent on how the course is delivered. If the DE delivery system (i.e. local college/university, local community college, or state sponsored virtual school) designs its courses such that the instructors are restricted in how to effectively teach the course, higher quality courses may not be the outcome (Cavanaugh et al.).

Other than additional rigor or enrichment to the traditional experience in the form of an AP course, DE more recently has been used to expand the course offerings available to schools, particularly by rural schools (Picciano & Seaman, 2007). The offering of these additional courses is a response to the need for greater teacher quantity and quality at rural schools (Hannum et al., 2009). With the mandates of the No Child Left Behind Act (2001), many rural schools struggle to hire and retain “highly qualified” teachers (Hannum et al.). Distance Education is used by many rural schools as a means to fill this gap or shortage and, by doing so, these schools are also able to offer more course choices to their students (Hannum et al.).

Beyond the opportunities to offer more advanced courses and to employ more highly qualified teachers, many schools today have taken advantage of DE by offering students in high school the chance to earn college credits that they may otherwise not be able to receive. Sequoia Choice Arizona Distance Learning has developed a program in which they pay up to $1000 per semester for high school students to take college course via DE (Program Provides Free College Credits for High School Students, 2010). If the students maintain at least a “C” average, they are not charged for the course. In 2004-05, 40% of school districts that utilized electronic distance education had students enrolled in courses that earned them dual credit (Zandberg et al., 2008). Simply put, dual credit courses are those courses in which high school students can be enrolled in, and are able to
earn secondary and postsecondary credits for the satisfactory completion of individual courses (Olive, 2010). Added benefits of dual enrollment courses are that they can be a predictor of postsecondary attendance, retention, and graduation (Olive, 2010).

Distance Education has been used for much more than simply expanding the curricula for upper level, college bound students. In fact, the inclusion of lower performing students taking DE courses has shown continual growth over the past several years (Cavanaugh et al., 2009). Many students today take DE courses to recover credits for courses not passed (Watson & Gemin, 2008). According to Watson and Gemin, the student has already put in the seat hours required to earn credit but still needs to demonstrate mastery of skills or content for a particular course, and the DE class fills this gap. The recovery of credits not earned during the regular course may have the added benefit of supporting the student’s self-esteem, particularly for students finishing their freshman year of high school (Franco & Patel, 2011). As Franco and Patel pointed out, students who do not earn enough credits to matriculate often exhibit lower self-esteem as a result and are more likely to drop out of school. In a study of a Michigan high school that implemented a credit recovery program, Franco and Patel found that most students who attempted DE credit recovery courses in the summer program passed and were able to move to the next grade. Though many schools rely on face-to-face instruction in their credit recovery programs, more schools today are moving towards all online and hybrid approaches to accomplish this task (Dessoff, 2009). Students who have dropped out of school can benefit from DE as well. According to a 2011 Gungor and Prins study, DE holds great potential for reaching learners who would otherwise be unable to enroll in a GED program or attend classes regularly, including people who live
in remote areas, who do not have reliable or affordable transportation, who have young children and limited access to childcare, who have physical disabilities, and whose work schedules preclude class attendance. (p. 1)

Whether an individual has need for a more challenging curriculum or they wish to take a course not offered at their high school, DE provides the benefit of access to these courses for students (Hannum et al. 2009; Piccano & Seaman, 2007). Distance education is also being used extensively to meet the needs of lower performing and “at risk” students in order to move them along towards graduation (Cavanaugh et al., 2009; Gungor & Prins, 2011; Watson & Gemin, 2008;). In either case, DE demonstrates potential benefits to students in virtually every aspect of education. Of interest for this study is the impact that these perceived benefits have on stakeholders in education when making the decision whether to use DE as a means of supplementing the curricula at rural secondary schools.

**Challenges to Implementing DE**

Despite the many benefits available to schools and students through distance education, there are some real challenges that exist in taking full advantage of the present opportunities. These issues range from funding distance education to ensuring quality education via DE and challenges incurred by students and teachers as part of the DE process. Each of these is a significant concern for stakeholders considering the use of DE as a means of supplementing their present curriculum.

Funding for DE tends to rank as the most significant challenge facing schools that are considering the DE option. According to a 2007 study that surveyed Midwestern high school principals on the challenges of DE, the single greatest barrier to DE was funding
Bral’s study also revealed that technology, as a barrier to DE, was ranked as one of the lowest concerns. In what is likely the most extensive study conducted on the challenges faced by high schools in implementing DE, funding was also reported as a major concern (Irvin, Hannum, de la Varre, & Farmer, 2010). Irvin et al. also reported that DE not being made a priority at the district level was another significant barrier, which may explain the lack of funding for DE at the school level. Additionally, an ongoing concern revolves around school districts and how they are funded based on daily attendance with respect to their online students (Picciano & Seaman, 2007). According to Picciano & Seaman, the question of counting students as present for daily attendance (and thus for funding purposes) remains unanswered and may influence the number of public schools that make wide range use of distance education from the student’s home. The possibility exists for secondary students to take all of their coursework online and not be counted present on campus at their local public high school. This situation could lead to decreased funding for public schools as most are funded based on daily student attendance reports (Picciano & Seaman, 2007).

Some states are addressing the funding issue for DE as a means to assist schools, whatever their socioeconomic status, by providing lower cost options through state sponsored virtual school programs. For instance, the state of Virginia, through its Virtual Virginia program, adjusts the cost per school for its AP courses based on the school’s ability to pay (Weldon, 2009). Because of such measures, Virtual Virginia saw its enrollment increase to over 1500 students in 2008 (Weldon). With over 70% of school districts (nationally) planning to expand the DE offerings in the future, finding funding for such measures will continue to be a challenge (Zandberg & Greene, 2008).
Though DE can help alleviate certain funding concerns with respect to having enough instructors to teach all the different courses that a district wishes to provide, teaching online can itself pose a challenge to schools implementing DE. Hawkins, Barbour, and Graham (2011) discovered that many online teachers felt their role as a teacher had been reduced to that of grader and tutor. Hawkins et al. also found that many teachers believed the procedural expectations, as well as being assigned too many students, resulted in difficulties in developing relationships with their students. However, Hawkins et al. did also find that many teachers believed it was the responsibility of the student to keep pace in the course and that most interaction between student and teacher had been student generated. In addition, Matuga (2009) noted that high school students who are taking online courses may have difficulties because the professor assigned to their class may not be familiar with the needs of secondary students. The result, according to Matuga, may very well be a course more rigorous than high school students are equipped to successfully complete.

With the increasing number of students taking online courses offered through colleges and universities to high school students, rigor in coursework is a real concern (Matuga, 2009). Matuga found that many students taking DE courses may not be able to handle the advance rigor. Furthermore, many students are not motivated to be successful in online classes (Murphy & Rodriguez-Manzanares, 2009). In their study, Murphy and Rodriguez-Manzanares found that key factors in motivating students—such as communication, interaction, and the building of relationships—may be disrupted in the DE format because of the separation of student and instructor with respect to distance and time. Motivation may be an even greater barrier when students who are already “at risk”
or are taking courses for credit recovery purposes are assigned to DE courses (Archambault et al., 2010; Oliver, Osborne, Patel, & Kleiman, 2009). Additionally, some fear that students may be put in a position to act with academic dishonesty while participating in an online course: “The additional time and energy to complete assignments, loneliness, and lack of personal contact with professors and peers may encourage cheating” (Sileo & Sileo, 2008, p.57).

Gender plays an important role in motivation and effort in online courses (Yang, Cho, Mathew, & Worth, 2011). Males tend to expend more effort in online courses than females while the opposite is true in face-to-face courses (Yang et al.). Furthermore, the format of the courses (online vs. face to face) tends to have a greater effect on female students than on males.

Although technology does not rank as a major barrier in most studies, it does present a challenge to rural schools that implement DE instruction (Irvin et al., 2010). Technological skill sets are seen as a possible challenge for students to overcome when taking courses via DE (Ferguson & Tryjankowski, 2009). In addition to technological skill deficiencies, late assignments and a lack of community in the virtual classroom are listed by Ferguson and Tryjankowski as possible reasons for the lack of success of some students in DE courses. Although having the technology necessary to implement DE courses does not seem to be the issue, having staff adequately trained in using technology to implement DE instruction does pose a more significant concern (Irvin et al., 2010; Bral, 2007). Lacking proper technology support and encountering technological difficulties have also been reported as significant challenges by DE instructors (Archambault & Crippen, 2009).
Implementation of Distance Education

Though technology may very well be a manageable concern for most schools with respect to DE, the availability of technology does play a key role in the format chosen for implementing DE courses. According to the National Center for Educational Statistics (2007), 97% of schools across the United States have access to Internet technology. Furthermore, the same NCES report found that rural schools actually have a slight advantage over urban schools with respect to Internet access in individual classrooms (NCES). It is apparent then that the infrastructure necessary to support modern DE courses exists across the country, even in rural schools. The decision then is how to best implement DE instruction. Should school leaders choose asynchronous courses, synchronous courses, or classes that are a combination of each? Additionally, who or what entity will provide the DE courses for students, and how can students and teachers/facilitators be best prepared for these DE courses? These are several of the questions that decision makers in local school districts must answer when developing the DE offerings for their schools.

Synchronous vs. Asynchronous Courses

Some debate exists as to whether synchronous courses in which students and instructors are in the same virtual world at the same time are more beneficial to students than asynchronous courses in which students and instructors meet on their own schedule in the same virtual world (Robleyer, Freeman, Donaldson, & Maddox, 2007). A study conducted by Offir et al. (2008) concluded that students who took DE courses achieved success at a higher overall rate when taking the classes via a synchronous format. Furthermore, Offir et al. found that asynchronous courses were considerably more
difficult for students of lower cognitive ability. Moridani (2007) found when studying over 150 students in a pharmaceutical course offered on three separate Texas campuses that there was no statistical difference in course grades, but satisfaction diminished for those who took the course using asynchronous videostreaming to receive their instruction as opposed to students who learned via a synchronous videoconferencing approach. Similarly, when comparing the communication method in a DE course, Johnson (2008) found that students who communicated synchronously through online chat instruments performed virtually the same on tests as those who used a more asynchronous discussion post format. Finally, in a 2012 study, Ge found that adult learners who took an English course using a blended cyber synchronous and asynchronous approach outperformed students who took only an asynchronous version of the course. Possibly, according to Ge, the synchronous format of connecting students and instructors in real time, even if they are in different locations, may have some learning outcome benefits.

**Course Providers**

The decision to implement DE as a means of supplementing the curriculum offered to students is followed quickly by the question, “Who is supplying the courses that we need?” As DE has expanded over the past several years, the number of course providers has expanded as well. According to Picciano and Seaman (2007), schools wishing to implement DE courses have many options from which to choose. School leaders may choose from the following entities to provide DE instruction for their students: school generated courses, courses created by other schools in their district, state sponsored virtual schools, private vendors, and colleges and universities, to name a few (Picciano & Seaman). Educational leaders also may choose from charter schools inside or
outside of their district, regional consortiums, and private, for-profit virtual schools (Hannum et al., 2009).

For the 2009-2010 school year, state sponsored virtual schools made up 33% of the differing entities that provided DE courses to secondary students in the United States (Aud et al., 2012). According to Oliver, Osborne, and Brady (2009), there are at least 12 states that sponsor virtual schools for K-12 remediation and enrichment. Rural schools use these schools often as well to supplement curricula while urban students may attend online schools for safety concerns (Oliver et al., 2009).

According to a 2008 study published by the National Center on Educational Statistics, 24% of school districts surveyed who had students enrolled in technology-based DE courses had students enrolled in courses from state sponsored virtual schools (Zandberg et al., 2008). This represents a 6% increase from a previous NCES study on schools during the 2002-2003 school year (Zandberg et al., 2008). In a study specific to rural schools, Hannum et al. (2009), found that of the schools that participated in DE, 8.4% of the courses came from public or private virtual schools. Hannum did report that 43% of rural schools surveyed who were currently participating in DE had courses provided to them by the state, though a state virtual school was not specified (Hannum et al., 2009). School districts in the Southeast were more likely to use virtual schools as a means of providing DE courses (52%) than districts in the Northeast (14%) and Western (15%) portions of the United States. School districts in the Northeast and West more often used post-secondary institutions to provide DE to their students (Zandberg et al., 2008).

Post-secondary institutions rank first among DE course providers for secondary
schools (Zandberg et al., 2008). Though post-secondary institutions can supply secondary schools with a variety of courses, over a third of the schools with students enrolled in technology-based DE Advanced Placement courses stated that a post-secondary institution had provided their courses (Zandberg et al., 2008). The use of such institutions to provide AP courses to rural students may help close the current gap that exists between the number of students who take AP courses in urban areas with those students in more rural areas who typically take at least one AP course in a given year (Weldon, 2009). Schools in New York reported having 35% of their students taking at least one AP course while that number was closer to 10% in states like North Dakota and Alabama and only 6% in Louisiana (Weldon, 2009).

**Evaluation of Distance Education Programs**

Rice (2009), in a study on priorities of DE over the period of 2009 to 2014, identified evaluation of course design and delivery to be the most important issue to address by DE policymakers. Vencatesan (2006) agreed that DE course development should be a key focal point for educators:

> Therefore, development of course content for DE programmes needs to move beyond adapting or modifying existing course material. In addition to the rigour in content, the curriculum development process needs to keep in consideration factors of course structure, presentation, flexibility and course pacing. Most importantly, the curriculum should create and enhance inter-activity, which is a multi-faceted process of interaction between the learner and other learners, the facilitator, the host institution and the content. (p. 892)

The International Association for K-12 Online Learning concurs with
Vencatesan’s observation but also includes many other factors when determining the effectiveness of DE course content (National Standards of Quality for Online Courses, 2010). In a checklist of course content evaluation, the International Association for K-12 Online Learning (INACOL) identified fourteen key areas to be ranked, among which included sufficient rigor, communication standards, and appropriate presentation of course materials (National Standards of Quality for Online Courses). However, INACOL also added to this list the teaching of Internet literacy skills, addressing copyright issues and Internet etiquette as well as several other key considerations (National Standards of Quality). Furthermore, Wang, Solan, and Ghods (2010) identified the following seven key principles to a successful DE course:

Principle #1: Encourage contact between students and faculty,
Principle #2: Develop reciprocity and cooperation among students,
Principle #3: Use active learning techniques,
Principle #4: Give prompt feedback,
Principle #5: Emphasize time on task,
Principle #6: Communicate high expectations,
Principle #7: Respect diverse talents and ways of learning. (p. 323)

The International Association for K-12 Online Learning has also developed a rigorous checklist of standards to evaluate the overall condition of a DE program at a given school. Within the context of this evaluative measure are nineteen categories subdivided into the following four key groupings: institutional standards, teaching and learning standards, support standards, and evaluation standards (Pape & Wicks, 2009). This evaluative measure compares favorably with other research, suggesting that
successful online courses and programs contain management of teachers, support for students, and evaluation measures for DE programs as identified by Watson and Gemin (2009).

**Guidelines to Implementing Distance Education**

A considerable amount of extant research in DE focuses on the students and best practices for their success. More research, however, has been done more recently on the role of teachers and administrators in providing for this success. Pulling from current research, the following are guidelines for students, teachers, and administrators to improve the overall quality of DE today.

One suggestion made for improving online teaching includes creating professional learning communities (PLCs) for online teachers to offer them an opportunity to collaborate and learn from each other (Fisher, 2011). Professional preparedness as a mindset and a practice is essential to good online teaching (Rambo, 2011). Teachers should also create online communities for their students so that they will feel more connected to and more a part of the class (Ferguson & Tryjankowski, 2009). Students in online courses may also need assistance from their instructors in managing their autonomy (Murphy & Rodriguez-Manzanares, 2009b).

Teachers can also study the assessment results of their online students prior to determining the most effective instructional methods for their classes (Fisher, 2011). Using a tool such as Smarter Measure, teachers can identify deficiencies that their students may have in reading recall and in their ability to type, which are both essential skills for the online learner (Grubb, 2011). Teachers can also use tools available to predict student success and satisfaction. Metz (2011), however, found that though
Satisfaction can be predicted with some accuracy, final grades for students could not. It is important as well to screen students taking online courses for their study habits, perceived learning styles, and any organizational or motivational issues that may be present (Ferguson & Tryjankowski, 2009). By doing so, many problems that could present themselves during the course can be identified and addressed ahead of time (Ferguson & Tryjankowski).

Additionally, teachers can improve their online practice by being more flexible in their facilitation of the courses they teach (Rambo, 2011) and by increasing their proximity to their students. This can be done through consistent communication using a variety of means to connect with their classes (Rambo). Murphy and Rodriguez-Manzanares (2009b) suggested that online teachers get to know their students better and focus on four identified Learner Centered Principles (LCPs). According to Murphy and Rodriguez-Manzanares, these principles include the following domains: cognitive and metacognitive learning, motivational and affective factors, developmental and social impacts, and the individual differences of the students.

Administrators can assist in focusing on individual student differences simply by addressing their needs for taking a DE course (Luehr, 2011). Administrators should focus on using DE to solve scheduling conflicts for students and to provide advanced and other courses not offered through the on-site school curriculum (Luehr). Furthermore, Luehr suggested that administrators assist in providing the necessary funding for DE programs at their school, be involved in the DE program, and generally be supportive in any way that they can.
Theoretical Framework

There are four key theories that drive DE today: the Transactional Distance Theory (TDT), Holmberg’s theory on communication in the DE world, Russell’s No Significant Difference Phenomena (NSDP), and the Equivalency Theory (ET). Each theory attacks a different subsection of the DE process. For instance, the TDT offers an explanation to the processes by which DE interactions occur. Holmberg’s theory on DE communication asserts that communication happens in multiple combinations between the teacher, student, and content. Russell’s No Significant Difference Phenomena was developed from a metaanalysis that reviewed hundreds of previous studies comparing the difference between traditional and DE and suggests that there is no real difference in outcomes of students taking DE courses versus those who take more traditional classes. Finally, the Equivalency Theory suggests that if content and instructional methods are equal for DE and traditional courses, results from the two should be equivalent. Beyond the theories mentioned above, any theory of learning or education can be applied to DE as well. The four key theories mentioned simply represent explanations to phenomena present in the world of DE.

Moore’s Transactional Distance Theory

Considering the nature of DE and the fact that students, teachers, and content may all be separated by time and distance, the ability to overcome issues related to this “distance” become paramount. The most noted of theories designed to address this issue, Moore’s Transactional Distance Theory, identifies three key components of DE interaction: dialogue, structure, and student autonomy (Moore, 1997). According to Moore, structure has a negative effect on student autonomy as the more structure there is
in a course, the less individualization is present. Also, the transactional distance in interaction between instructor and student grows when there is less structure and less dialogue (Moore). Conversely, the more structure there is in a DE course and the more dialogue there is between teacher and student, the less transactional distance in communication will occur (Moore). Benson and Samarawickrema (2009) agreed that these phenomena occur with respect to transactional distance but add that the greater the distance there is between instructor and student, the more necessary increased dialogue and structure become. The less distance between instructor and student, less dialogue and structure are required (Benson & Samarawickrema).

In a 2009 study, Murphy and Rodriguez-Manzanares applied Moore’s Transactional Distance principles in the context of a secondary setting. Their findings suggest that Moore’s beliefs of Transactional Distance, which mostly have been applied to post-secondary DE, do not directly apply to their discoveries of DE on the secondary level. For instance, Moore proposed that more interactive media would reduce the transactional distance that occurs in a DE course by supporting greater dialogue (Moore, 1997). Murphy and Rodriguez-Manzanares found in their study that enhanced interactive media may not decrease the transactional distance experienced between learners and instructors and that other variables, such as the way the content is structured, may impact and be impacted by the level of interactive media used to support the course. This may or may not be a significant issue as Malik and Rahman (2010) found that over 73% of DE students “learn independently at their own pace” (p. 374).

Possibly the strongest criticism of Moore’s Transactional Distance Theory comes from Gorsky and Caspi (2009). In their review of Moore’s theory, along with numerous
studies that supported Moore’s theory, Gorsky and Caspi found most of the support for Moore’s theory to be scientifically inadequate. Studies that proved reliable lacked validity. Studies that seemed to be valid may have used definitions for terms such as “dialogue” that differed from Moore’s definitions, thus disallowing any strong connection (Gorsky & Caspi). Furthermore, Moore’s Transactional Distance Theory has no link to student outcomes (Gorsky & Caspi). Gorsky and Caspi said that any theory that serves as the force behind distance education research should be linked to its impact on student achievement, so they developed their own theory related to DE communication: the Theory of Instructional Dialogue.

In the Theory of Instructional Dialogue, Gorsky and Caspi (2009) proposed that a better approach to understanding the issues related to dialogue and communication in DE are better served if the dialogue is relegated to an independent variable with learning outcomes operating as dependent variables in future DE research. Learning outcomes are described by Gorsky and Caspi as “achievement, learner satisfaction, and attitudes toward the discipline” (p. 4). Beyond learning outcomes, the Theory of Instructional Dialogue is based on these two concepts: (a) that every element of instruction represents either dialogue or a form of a resource and (b) that instructional and human resources account for a large portion of the variance in DE dialogue based on instructor strategy, instructor/student availability, and group size (Gorsky & Caspi).

Holmberg’s Theory

Though students may operate with greater autonomy in the DE world, communication between students and teachers can have a significant effect on the level of success a student achieves in a DE course (Ouzts, 2006). Communication among or
between teachers, students, and content has been a major basis for theory in the world of DE. Holmberg (2003) identified the need for communication in DE. Holmberg’s theory of distance education involves three key components: individualism, approaches to learning, and relationships. According to Holmberg, DE courses are designed to serve the needs of individual learners that, for whatever reason, do not wish to pursue their education in a traditional on-site placement (Holmberg, 2003). Furthermore, Holmberg believes that the communicative abilities of modern DE allow for instruction and learning through behaviorist, constructivist, and cognitive techniques. A major aspect to his theory, in addition to individualism and approaches to learning, is the role relationships play between all parties involved in DE (Holmberg). As Lee et al. (2011) noted in their study, student satisfaction—a factor in the present study—is linked to support the student receives. Lee et al. also asserted that a key component of this satisfaction level is the communication between teacher and student.

**The No Significant Difference Phenomena**

Proposed in 1999, Russell’s No Significant Difference Phenomena (NSDP) asserts that research conducted on distance education since the 1920s demonstrates that there are no particular advantages or disadvantages when comparing different forms of technology imparted in the delivery of DE. He stated that school systems should keep this in mind when allocating tax dollars towards educating children, proposing that since there is no real difference in outcomes, the cheaper alternative in a given situation should be chosen (Russell). Russell did note that there are examples of studies that show certain forms of DE have a more significant positive relationship with outcomes in student achievement but also that there are just as many studies that show the opposite.
According to Russell, the vast majority of the over 400 studies reviewed in deriving this theory show little or no difference in selected approaches to DE.

Some recent studies support Russell’s NSDP theory, finding no significant difference in achievement when comparing DE to traditional education (Reviea, 2010; Sheppard, 2009; Torain, 2009). However, other studies show that students enrolled in traditional, face-to-face courses achieve at a greater rate than those enrolled in the same courses offered in a DE format (Carter, 2012; Karatass & Simsek, 2009; Ferguson & Tryjankowski, 2009). Ferguson and Tryjankowski found that in addition to greater initial learning by the students who took the traditional course, these students also demonstrated more permanence in learning.

In another higher education study, Peroz, Beuche, and Peroz (2009) found that medical students showed no significant difference in retention of knowledge whether they received information via a face-to-face lecture or using an online tool to acquire the same information (Peroz, Beuche, & Peroz). There was some advantage in short-term retention for those who participated in the face-to-face lectures (Peroz, Beuche & Peroz). Overall, the authors determined that the method of delivery of instruction had little impact in the long term outcome for students (Peroz, Beuche, & Peroz).

Though the studies above seem to support and dispute Russell’s NSD phenomena at the same time, one meta-analysis conducted by Cavanaugh et al. (2004) does support the idea that learning results are similar if not equal in online and traditional course settings. According to the Cavanaugh et al. study, which reported on 116 outcomes with over 7500 participants, educators have every reason to expect similar learning gains from well-designed online courses as they would from traditional brick and mortar classroom
courses. More importantly, the Cavanaugh et al. meta-analysis compared traditional and online education in the K-12 environment. Most comparative studies to date have been on post-secondary students, so having such an in depth analysis in support of Russell’s NSDP is important for the present study on the target school.

The studies above, as well as countless others, show that although there is some evidence to disprove Russell’s NSD phenomena, there is also a considerable amount of research in support of the concept that no significant difference exists in outcomes for students in online classes versus those in traditional courses. Of interest for this current study then is whether stakeholders at the target school are (a) aware that the studies show there is no significant difference in delivery method of instruction and (b) of a particular opinion as to whether traditional or DE will produce better achievement. Though the current study is not designed to compare similar courses taught in both formats, further research in this area would be a likely path to completely understanding DE at the target school.

The Equivalency Theory

The Equivalency Theory as espoused by Simonson (1999) asserts that one can expect similar results from distance education courses when compared to face-to-face courses. The caveat in this comparative statement is that the learning activities in both instructional delivery models are equivalent (Schlosser & Simonson, 2006). The activities do not need to be the same, but to produce similar achievement results, the activities must produce similar learning (Schlosser & Simonson). In fact, Schlosser and Simonson stated that some who are in support of DE believe mistakenly that all course opportunities should be identical for online and classroom learners despite the obvious differences that
are present between the two groups.

Schlosser and Simonson (2006) suggested there are differences between traditional and online learners that may necessitate different instructional methods and learning activities. The Equivalency Theory is based on two concepts surrounding this idea: the concept of equivalency and the concept of the learning experience (Schlosser & Simonson). According to Schlosser and Simonson, equivalency simply refers to activities that when combined constitute an equal opportunity for reaching learning goals for online and face-to-face learners. “It is likely that different students in various locations, learning at different times, may require a different mix of learning experiences” (Schlosser & Simonson, p. 56). A learning experience is described by Schlosser and Simonson as virtually any activity that promotes learning.

In a test of the Equivalency Theory, Lapsley et al. (2008) studied 63 college students in separate sections of a human resource course. The following factors that could influence the equivalency of the learning experience for the students were controlled and were the same for the classroom students as well as those who took the course online: the term, the instructor, and the tests and assignments (including the order in which they were given) (Lapsley et al). In a similar 2007 study, Weber and Lennon compared four sections of a Principles of Marketing undergraduate course and controlled many of the same factors as the Lapsley et al. study: the professor, the textbooks, projects, exams, and the order in which the information was presented. In both instances, the researchers concluded that the web-based courses offered an equivalent learning experience for students who chose or who were selected for that option. Lapsley et al. did find that student satisfaction was negatively affected by being in the online course, but the
flexibility of completing the requirements via the web offset any undesirable effects.

**Conclusion**

As mentioned previously in this paper, DE in the United States has been growing at a rapid rate since the turn of the 21st century (Hannum et al., 2009). With the advent of newer and greater technology, K-12 educational institutions have taken greater advantage of the opportunities afforded by choosing to implement DE (Aud et al., 2012). Rural schools in the United States in particular have needs and concerns that drive them to make use of DE to supplement the curricula they offer (Irvin et al., 2010). A lack of qualified teachers, lower enrollments in specialized or advanced courses, and the need to expand course offerings are reasons that rural schools turn to DE to fill gaps in service for their students (Irvin et al.). Current research suggests that DE can, in fact, be a tool used by rural schools to bridge the gaps in existing curricula (Bral, 2007; Hannum et al; Irvin et al.).

A preponderance of the research that is available today on DE was conducted based on the experiences of students, faculty, and administrators at the post-secondary institutions (Davies, Howell & Petrie, 2010). More recent studies have delved into the impact and implications of DE at the secondary level, but again, the amount of research that focuses solely on secondary DE is limited (Cavanaugh & Barbour, 2009). Therefore, there is a need to investigate in greater detail the processes, problems, and solutions in implementing DE on the secondary level. Furthermore, when one researches DE at the rural secondary level in the United States, the depth and breadth of information available becomes even more limited (Davies, Howell & Petrie, 2010). To this point, no study has been uncovered that examined a single rural high school’s experiences with DE. Theory
and statistical data can only explain so much of the realities of DE at the rural secondary level. This proposed phenomenological case study on a target rural high school in central Virginia will fill some of the gaps in research that larger, more empirical studies simply have not.

Rural secondary schools in the U.S. face numerous challenges in educating children within their districts. For some schools, providing highly qualified teachers is a difficult problem to overcome (Hannum et al., 2009). For others, being able to ensure that all of their students have the opportunity to take courses that match their interests and abilities is a driving force to take part in DE. For many rural schools, the provision of Advanced Placement courses, courses that require highly specialized instructors and often have limited enrollments, have been a significant concern in the past. The implementation of DE at rural schools has been demonstrated as a possible solution to each of these problems (Hannum et al.).

The use of DE to meet the particular needs of rural secondary schools does not come without challenges. A major barrier to the implementation of DE at rural high schools is funding. Bral (2007) and Hannum et al. (2009) each identified funding as a major obstacle for these schools to overcome. Funding is seen as a major issue, in that many schools find it difficult to pay for DE infrastructure and for courses offered by outside sources (Bral; Hannum et al.). Funding is also an issue with respect to whether students who are not physically present at rural schools, yet are enrolled through these schools in DE courses, actually count towards the attendance numbers that are used to determine the level of funding a school receives (Picciano & Seaman, 2007). Scheduling conflicts and the setting of DE as a school or district priority are troublesome for many
rural schools as well. Finally, many secondary schools that use DE also deal with problems incurred when high school students take courses provided by college and universities. Studies suggest that these issues may stem from high school students not being adequately prepared or the college professor not being sufficiently aware of the unique needs of the high school student (Matuga, 2009). Whatever challenge is presented to rural schools, solutions to these various problems must be derived for rural secondary schools to receive the benefits of DE.

The benefits of DE at the secondary level are many. Increased ability for schools to offer a variety of courses that they previously could not, the virtual acquisition of highly qualified teachers, and the provision of advanced courses for interested students are benefits available to rural high schools that implement DE to supplement their curricula (Weldon, 2009). Furthermore, many students are using DE as a means to recoup credits previously lost in the traditional classroom (Watson & Gemin, 2008). Others who have found it difficult to complete high school are using DE to earn their General Equivalency Diploma (Gungor & Prinis, 2011). The benefits that rural schools and their students can receive from DE are real if the leaders in the school community choose to implement DE.

The success of any DE program, as it is implemented by rural high schools, is based to some degree in DE theory. Moore’s Transactional Distance Theory identifies the major components of DE and the interplay that occurs among them (Moore, 1996). An understanding of the distance that is inherent in DE is central in understanding how to best use and evaluate DE at the high school level. Holmberg’s theory on communication provides a basis for associating the importance of the way in which the various
components of DE (students, teachers, and content) communicate and helps to develop an understanding of how each component relates to the other two (Holmberg, 2003).

Possibly the most applicable theory for DE decision makers at rural secondary schools is referred to as the No Significant Difference Phenomenon (NSD). According to the precepts of the NSD theory, both traditional and DE methods of instruction should produce comparable results (Russell, 1999). There is some dispute as to the measures that were used in determining this theory, but nonetheless, the concept of comparable outcomes for DE as compared to traditional education is supported by many (Russell). Recent research on the Equivalency Theory seems to support the idea that DE can produce the same learning results as traditional methods of teaching students (Lapsley et al., 2008; Weber & Lennon, 2007).
CHAPTER 3: METHODOLOGY

This study took an in-depth look into the rationale for how and why a small rural high school in central Virginia has developed its present pattern of distance education usage at the school. By gathering data over the past four years, changes in DE usage were visible. This study was designed to explain the “why” behind any numerical change found in, for instance, the number of courses offered, the number of students taking DE courses, or the addition of more DE sources to supplement to curriculum at the target school. Furthermore, this study focused on the challenges of using DE, solutions to these challenges, and the benefits of DE for the target school. In addition, the implementation parameters of DE at the target school (i.e. synchronous v. asynchronous courses, credit v. credit recovery, course providers, etc.) were investigated. Finally, a series of guidelines have been generated from this research that can be used by other schools similar to the target school who wish to make use of DE as a means of supplementing the curriculum for their students.

This study is based largely on the research conducted by members of the National Research Center for Rural Educational Supports (NRCRES) on schools across the nation that qualified under the federal government’s Rural Education Assistance Program (REAP) for the years 2004-2005 (Hannum et al., 2009). The distinctions between the present study and that conducted by the NRCRES are the limited scope by which this study was focused and the difference in research design; Hannum et al.’s study was quantitative while this study is qualitative. The Hannum et al. study encompassed over 400 schools and gave insight into some common areas of concern for rural schools in the United States with regards to DE. Though the current study focused on only one school,
the results from Hannum et al. and other related studies can be used for comparison.

**Design of the Study**

The design of this research study is qualitative in nature. In addition, because the aim is to determine the reasons why DE decisions are made, a phenomenological approach was utilized. According to Ary, Jacobs, Razaveigh, and Sorensen (2006), this is the best approach at reaching the intended outcomes because it gets to the root of the experience of the individuals involved. The study is phenomenological in that it relies on the subjective experiences of individual stakeholders in DE at a rural Virginia secondary school (Ary et al.). According to VanManen (2007), “Phenomenology is a project of sober reflection…sober in the sense that reflection on experience must be thoughtful, and as much as possible, free from theoretical, prejudicial and suppositional intoxications” (p.12). This project is phenomenological in that it investigates the shared experiences of several groups of individuals with respect to their involvement in DE at the target school (Creswell, 2007). It was intended that this project also be epoch in nature in that I did not include my past experiences in the results of the study, nor relied on any predispositions held toward DE but rather reported solely on the collective experiences of the participants with regard to DE.

Essentially, this project has been designed to answer the “why” questions with respect to DE at the target school. Why have students chosen DE as part of their curriculum? Why have parents chosen this method to supplement their child’s education? Why have the leaders for the school decided move in the direction of increasing incorporating DE courses as part of the overall curriculum for the school? Furthermore, it is important to understand why parents, students, teachers, and school leaders feel the
way that they do about DE (good or bad) as this will have an effect on the direction of DE at the target school in the future. The answers to these collective “why” questions, which can only be ascertained through a qualitative, phenomenological design, will give a clearer picture to the recent historical development of DE at the target school as well as the anticipated usage of DE at the target school in the near future.

**Selection of Participants**

Sampling for this study was done using a criterion based sampling strategy. According to Gall, Gall, and Borg (2005), this is an appropriate strategy for qualitative research when the participants have a certain criteria in common. Participants in this study had a role either in designing or participating in the DE program at the target school. Stakeholders at the target high school were included if they have, or have had, a major impact on the decisions making and direction of the DE program employed at the school. Individuals who have impacted decision making with regards to DE at the target school include the following: the division superintendent, the division assistant superintendent, the director of technology for the school division, and the principal, the dean of students, career and technical education program director and the guidance director at the target school. One school board member, who was also the parent of a DE student, participated as well but did so as a parent, not a school board member. All of the participants were able to shed light on why this school has implemented DE to support its curriculum and described barriers that were overcome in the process. In addition, these individuals were in the position to state the direction that DE at the target school will take in the coming years.

As a means of inviting DE decision makers to participate in this study, an interest
email was sent to all the leaders mentioned above. Currently, I have access to email addresses of all persons mentioned as members of the decision maker grouping. In this email, a description of the study was presented and any potential risk associated with participating was outlined. A follow up email was sent within three days to all selected participants who, at that point, had not replied. Those who replied in the positive were sent another email with interview scheduling options and an informed consent form (Appendix A). All persons who return the informed consent form were considered participants in this study.

Those stakeholders who are more impacted by the school’s *use* of DE, as opposed to having an impact on DE decision making, were studied as well. Students enrolled in DE courses, parents of students enrolled in DE courses, teachers and facilitators who have implemented DE into their instruction and DE course facilitators were studied for a description of their experience. From these individuals, data was generated that answered why each chose the DE format, what impact of DE has on students, and how DE can best be implemented at the target school in the future.

To invite parents, students, and teacher/facilitators to participate in this study, an interest email/letter was generated and delivered to those selected to participate (Appendix B). Included in this email/letter was a summary of the goals of the research and any risks that may be present if one decides to participate. Researcher contact information was provided as well as an explanation that an informed consent was forthcoming should the person choose to participate. For parents of students that were to be interviewed, an explanation was given of exactly what would be expected of the student should the parent consent to their participation.
For students and for parents who have students enrolled in DE courses at the target school, an interest email/letter was given to selected participants (Appendix B). Students were selected by assigning a number to those who are currently enrolled (or have recently been enrolled) in DE courses. This information was obtained through the student record system used by the target school. The numbers were then placed in a hat and retrieved one-by-one by a person not participating in this study. This person currently serves as one of the assistant principals. She has recently been hired from out of the division and has no other part in this study. The assistant principal currently has access and rights to view the information that she viewed while assisting in the selection of student participants. The number assigned to the student remained with them throughout the course of the study. Students who were selected for participation in this way had letters sent to their parents requesting permission for them to participate (Appendix C). This letter explained the purpose of this study as well as indicated any potential risks. This letter also outlined the procedures for participation and had a permission form attached to be returned to me. The letter and permission form served as a means of retaining informed consent for the student to participate in this study. The student subgroup was to consist of up to 10 students (based on student agreement and parental permission). In the end, six students agreed to participate and were interviewed.

The participant grouping referred to as teachers/facilitators of DE at the target school included all teachers currently included in the master schedule for the school as teaching/facilitating a DE course. In addition, an interest email was sent to all faculty and staff for the purposes of including any teacher who has taught/facilitated a DE course in the past (Appendix B). As the number of possible teacher/facilitator participants was
likely to be under ten, it was the intent to interview all persons who fell into this category. Positive replies to the interest email necessitated the sending of an informed consent letter to each person who agreed to participate (Appendix A). Upon receipt of this signed consent form, the person was considered a participant in the study. A total of six teachers/facilitators ultimately agreed to participate. No teacher/facilitator who was asked to participate denied the request.

Parents of students who are currently, or have recently been, enrolled in a DE course at the target school were sent an interest letter to request their participation in the study (Appendix B). Parents were selected using a similar process as that described above for the selection of students. Students currently, or recently, enrolled in DE courses were assigned a number and those numbers were drawn from a hat. Two students who were selected to be asked to participate in the study also had their parent’s number drawn. Otherwise, the students and parents selected for participation were from different families. Those parents who agreed from the interest letter to participate were sent an informed consent letter (Appendix G) and were considered participants in this study upon the return of the informed consent form. The parent group was to include up to 10 participants (based on participant agreement). Ultimately, six parents agreed to participate, and five were interviewed. One parent that had agreed to participate had scheduling conflicts that prevented her participation.

**Community and School Demographics**

The school in this study is a small rural school located in the heart of the Commonwealth of Virginia. The school and the county it serves is located almost directly between the cities of Lynchburg and Charlottesville along the US Route 29 corridor. The
school being studied is home to roughly 15,000 inhabitants and serves the approximately 2000 school-aged children who live in the county (U.S Census Bureau, 2010; A Snap-
Shot of Nelson County Public Schools, 2010). The county is diverse in its economic levels, with some residents living in the more up-scale ski/golf resort area while many others live in poorer areas. The county is predominantly made up of White Americans (82%) but has a substantial African American (13%) and Hispanic (3%) populous as well (U.S. Census Bureau, 2010). Residents of the county have a median income level of $45,551 annually with just over 13% of the population falling below the federal government’s poverty line (U.S. Census Bureau). Just fewer than 50% of the students attending the four schools in the county receive free or reduced lunches (Snapshot). The ethnic and socioeconomic makeup of the target school mirrors the numbers for the county as a whole.

**Procedures**

Prior to the commencement of any research at a school in the district that operates the target school, it was necessary to submit a letter of request to the assistant superintendent. Upon receipt of the letter of request for research, the assistant superintendent consulted the division superintendent, and permission was granted for the research to be conducted. Information requested by the assistant superintendent of instruction included the timeframe for research, resources necessary for the research, and whether students were to be included in the research. These interactions were conducted via email. All emails regarding gaining permission to conduct this research study have been printed and stored on my personal flash drive.

After gaining permission from district level administrators to conduct this study,
permission was sought from my dissertation committee (via the acceptance a final version of this proposal) and Liberty University’s Institutional Review Board. Because children will be included in the interview, observation, and document collection and analysis phases of this research, it was necessary to first have all of the above permissions in place prior to starting research.

Once all permissions were attained, research commenced. Data collection for the three key data points (interviews, document review, and on-site observations) was conducted as simultaneously as possible. The data was analyzed as it was collected, with periodic suppositions of the meaning of the data being generated along the way. Once all data had been collected, final conclusions were drawn, and the results have been reported in Chapters 4 and 5 of this document.

Finally, I created a research journal to assist in analyzing data and to note perceptions I developed from this data. In this journal personal bias was noted as well early conclusions. These initial conclusions were later compared to data that was gathered from this study as well as other studies noted in Chapter 2 of this document. The journal was used as a way to explain why certain conclusions about data were drawn.

**Data Collection**

**Research Question #1:** What are the benefits of DE usage at the target school? A motivating factor in determining the level of success of DE at the target school is whether those identified as decision makers and other groups such as teachers, students, or parents receive a benefit for their participation in the program. The concept of benefits received from DE was asked on each of the interview formats. For decision makers, this was in the form of Question #8 on the Interview for DE Decision Makers, which asked for any
evaluative measures that are present at the school for the DE program. Teachers/facilitators, students, and parents were asked more directly on their interviews of any perceived benefits that they have received from participating in DE courses. For instance, on the Interview for Teachers/Facilitators and on the Interview for Students enrolled in DE courses, questions #6 and #8 respectively asked about the benefits of DE at the target school. On the Interview for Parents of students enrolled in DE courses, question #5 asked the parents about benefits of the child taking a DE course at the target school.

A review of documents such as course enrollments, course offerings, median SAT scores, and post-secondary enrollment reports lent some validity to any perceived benefits of participating in DE at the target school. For instance, students may state in their interview that they feel DE courses will prepare them to move on to college. A collection of such documentation was designed to support or refute this claim. Decision makers may claim that through DE, more higher level courses can be offered than in previous years. This claim could also be supported or disclaimed through a review of the relevant documents.

Special permission to access the above mentioned documents was sought through the completion of the document review permission process; a form was given to the division superintendent and to the target school principal (see Appendix D), and upon their signing, I requested these documents from those who are charged with keeping them.

Five on-site observations were conducted and used to compare perceived benefits of DE against the visible implementation of the program. Data was collected during the
observations using an observation protocol form that collects descriptive and reflective information (Appendix E) and by using a memoing technique in taking notes. Additionally, a Student Engagement Observation and Reflection tool (Appendix F) served as a post observation reflective measure and helped identify behaviors of students witnessed during the time of the observation (School of Education of The College of William and Mary, SCHEV, and VDOE, 2012). If students in the interview process said that a benefit of DE is that they may progress through the course at their own pace, this pace may be observable. If decision makers believed that a benefit of DE was being able to schedule many students, with varying courses, in the same classroom at the same time, this would have been plainly evident. If parents felt a benefit of DE was that their child would have access to technology that is not present in the home, this too could be supported (or denied). The on-site observation was valuable in establishing a reasonable comparison between DE perception at the target school and its reality. For such comparisons, a researcher-generated checklist was used that includes themes drawn from the interview data collected, data matching these themes from the document review, and on-site observations (see Appendix G).

**Research Question #2:** What barriers exist(ed) to the implementation of DE at the target school, and how did the target school overcome identified barriers? As research suggests, financing DE in rural schools is a major stumbling block (Hannum et al., 2008; Bral, 2007). Both Hannum et al. and Bral listed other factors as barriers to DE at rural schools; among these are potential inhibitors such as expertise, scheduling conflicts, student and teacher preparation, and technology shortcomings. To address barriers to DE implementation at the target school, questions #5 and #6 were included on
the Interview for DE Decision Makers. Question #5 asked about barriers that have been overcome in the past several years, and question #6 inquired about any current barriers to DE. The interviews for teachers/facilitators, students, and parents of students each addressed the same issue of potential barriers but refer to the barriers as challenges that each group of participants had faced in their DE experience at the target school. These questions can be found in Appendices F-I and include #5 on the Interview for Teachers and Facilitators of DE, #5 on the Interview for Students enrolled in DE, and #4 on the Interview for Parents of Students enrolled in DE. Information gleaned from the interviews was useful in collecting many of the real and perceived barriers that exist at the school with respect to using DE as a viable means of supplementing the curriculum.

The question of possible solutions to such barriers was posed directly to DE decision makers in the form of an open question (#5 on the Interview for DE Decision Makers) in that the participants were asked what barriers have been overcome in implementing DE. Additionally, on the same interview, decision makers were asked in question #6 if any barriers to DE currently exist at the target school. Follow up questions for #6 revolved around ways in which the decision makers planned to overcome any current barriers. Determinations were made from responses to these questions whether the problems faced at the target school with respect to using DE are similar to those faced by other rural schools around the US as presented in current research.

Beyond the use of interview data for analyzing barriers to DE usage at the target school, data from important documents was reviewed for importance in identifying problem areas and solutions to these problems. For instance, a review of the Division Comprehensive Improvement Plan (as well as the School Improvement Plan) was to
show if DE has been, or currently is, a concern for decision makers. By analyzing data from these documents over a period of four years (two years for the Division plan), one could determine if DE concerns had been addressed. Furthermore, a review of the division technology plan for the past four years provided insight into needs for DE as well as how those are being addressed. Combined data from the interviews and documents collected will provide results about barriers that have been, or are currently, associated with DE implementation at the target school and how those problems have been solved, if they have been solved. For such comparisons, a researcher generated checklist was used that includes themes drawn from the interview data collected and data matching these themes from the document review and on-site observations (see Appendix G).

Special permission to access the above mentioned documents was sought by completing the document review permission process as described in Research Question #1. A form (Appendix D) was given to the division superintendent and to the target school principal, and upon their signing, I requested these documents from those who are charged with keeping them.

Finally, some barriers to implementation of DE at the target school may be visible in the day to day operation of the program. For this reason, it was important to conduct on-site observations to collect any data that may determine present or past barriers. Data was collected during the observations by using an observation protocol form that collects descriptive and reflective information (Appendix E) and by using a memoing technique in taking notes. Additionally, the Student Engagement Observation and Reflection tool (Appendix F) served as a post observation reflective measure and helped identify
behaviors of students witnessed during the time of the observation (School of Education of The College of William and Mary, SCHEV, and VDOE, 2012). Items of interest during the on-site observation included access to technology, problems with course management, and frustrations of any kind that may be apparent. The information gleaned from the observations was then compared to other data gathered from interviews and document reviews to determine if the barriers presented by the participants have been addressed. To make appropriate comparisons of data, a checklist was used that includes themes drawn from the interview data collected, data matching these themes from the document review, and on-site observations (see Appendix G).

**Research Question #3:** What are the implementation parameters of DE at the target school (i.e., format choice, course providers, patterns of usage, program evaluation measures)? Implementation parameters, in this sense, simply mean the form or shape that DE currently takes at the target school. For instance, do students take more synchronous or asynchronous courses? Do the courses come primarily from local community colleges, universities, private companies, state sponsored programs, or a combination of the above? How many students are currently enrolled in DE courses at the school, and is this number greater or fewer than in past years? What measures are in place to evaluate the DE program at the target school? All of these questions will be answered individually as part of this study, but collectively, they represent the form in which DE is shaped at the target school.

According to Robleyer et al. (2007), there is very little difference in student benefits from asynchronous and synchronous courses. Hannum et al. (2008) asserted that a hybrid model, one in which students are in a classroom with a trained facilitator taking
an online course, is the most reliable with regards to student outcomes. Because of the variance in opinion on which format DE should take, it was necessary to investigate how the target school has chosen to deal with this dilemma.

Through the interview process, DE decision makers for the school were asked to state which format of DE is preferable (synchronous, asynchronous, or hybrid) and why they believe so (#9 on the Interview for DE Decision Makers). As format choice for the school is typically a decision made at the administrative level, this was not asked directly of teachers, students, or parents. From the interview and subsequent document review of course offerings and enrollment numbers, the format for courses offered and those enrolled was evident. Furthermore, the reasons given as to why a particular format was chosen for the target school were to be noted as part of on-site observations. The on-site observation was valuable in establishing a reasonable comparison between DE perception at the target school and its reality. Both the Observation Protocol (Appendix E) and the Student Engagement Observation and Reflection tool (Appendix F) were used to collect data during these observations. To make appropriate comparisons of data, a researcher generated checklist was used that includes themes drawn from the interview data collected, data matching these themes from the document review, and on-site observations (see Appendix G).

The determination of which entity is most frequently used to provide DE for the school is just as important as which format has been selected. For this reason, on the interview for DE Decision Makers, Question #10 was added to better determine the delivery method and entity most used. Decision makers were asked to select from four options of DE providers to make this determination: Virtual Virginia, post-secondary
institutions, private vendors, or other agents who provide DE courses. By reviewing course enrollment documents for DE at the target school, a comparison could be made as to what decision makers believe to be occurring and who the providers are for the courses that students are currently taking. To appropriately compare such data, a researcher-generated checklist was used that includes themes drawn from the interview data collected, data matching these themes from the document review, and on-site observations (Appendix G). A review of the courses offered by the facilitator for the group of students observed would answer the questions of which entity most provides DE courses and which format is most used.

In addition to knowing the format and provider choices for DE at the target school, developing a pattern of DE course usage was of keen interest. In this sense, the pattern of usage simply refers to the number of students enrolled in DE courses at the school over the past four years. Some information along this line was attained through the interview process by asking decision makers for an estimated pattern of student usage of DE courses as well as asking teachers, students, and parents about their DE history at the target school, but the data most utilized to determine patterns of student DE usage came from enrollment reports from the past four years.

Special permission to access all of the above mentioned documents was sought through the completion of the document review permission process as described in Research Question #1. A form (Appendix D) was given to the division superintendent and to the target school principal, and upon their signing; I requested these documents from those who are charged with keeping them.

Finally, because a second aim of this study is to create a series of guidelines for
DE in rural secondary schools in Virginia, it was important to also determine any evaluative measures that are in place for the DE program. This question was directly asked to decision makers during the interview process but was also to be observed in the classroom setting by noting many criteria that would be considered when conducting a formal evaluation of a school program. Items to be observed in this case included perceived student and teacher preparation for DE courses, technological availability, technological support, and classroom setting. Beyond the interview and observation processes, it was also important to thoroughly review relevant documents such as school and district improvement plans and division technology plans for any indication that the DE program at the target school has been or is being formally evaluated.

**Research Question #4:** What suggestions do stakeholders have for improving DE at the target school? Important in understanding the direction that the distance education program will be taking for the target school is ascertaining what suggestions stakeholders of the target school have for improving the program at the school. Each of the four groups in this study have unique perspectives on improving DE at the target school, and their opinions of such shed light to challenges they have faced within the program.

The key source of data for Research Question #4 was the semi-structured interview conducted with each participant. The next to last question that each participant was asked was, “What suggestions do you have for improving distance education at this school?” In addition, each participant was given a chance, with the final question, to add any additional comments. As the interviews were semi-structured, it was possible that the conversation could turn to improving DE at the target school, so responses to questions of additional comments and challenges were collected with the knowledge that some data
regarding improving the DE program would be included as well.

Beyond the semi-structured interview process, data for Research Question #4 was collected through a document review and through five on-site observations. Documents of interest were the 2013-2014 proposed budget for the school district, the district improvement plan, the target school’s improvement plan, and the district technology plan, all of which shed some light to what the developers of these plans believe is important in moving forward with DE at the target school. Additionally, data to support Research Question #1 was found in the school’s Program of Studies Guides for 2011-2012 and 2012-2013 and by a review of DE course enrollment reports for the school years of 2009-2013. Furthermore, the five on-site observations delivered data from students and the teacher/facilitator with respect to certain problems they were facing and included their input regarding how to solve these issues. All such data was collected by use of the Observation Protocol (Appendix E) and the Student Engagement Observation and Reflection tool (Appendix F).

**Interview Methods**

Semi-structured interviews were conducted with each of the participants in this study in the following groups: DE decision makers, teachers/facilitators of DE, students enrolled in DE courses, and parents of students enrolled in DE courses (Appendices F-I). According to Cohen and Crabtree (2006), a semi-structured interview is one in which a formal interview takes place using a pre-developed guideline of questions and topics to be covered and is flexible in that the interviewer is allowed to go off on topical tangents with the interviewee as long as the tangents are applicable to the study. The semi-structured interview can be used when the research wishes to go deeper into an issue than
a survey or a more structured interview will allow (Harrell & Bradley, 2009). For example, Kirby, Shapre, Bourgeois, and Greene (2010) used a semi-structured interview after participants had completed a phone survey in order to gain more detailed information. As explained by Kirby et al,

…the sample of individuals interviewed was purposely selected in an effort to produce a rich and detailed account of their insights and perspectives regarding the transition from high school distance e-learning a year after leaving high school and also to differentiate between these perspectives with the respect to their earlier participation (or nonparticipation) in high school distance e-learning courses. (p.165)

Though each group was asked slightly different questions (as outlined in the interview descriptions below), there were six items of interest that were asked of all participants. The opportunity to explore each line of questioning was important in answering what DE is like at the target school, how it came to be this way, and where DE may be heading in the future. Each respondent was queried as to their perceived level of importance of DE at the target school, their perceived level of preparation for DE courses, and their level of satisfaction with their DE experience. In addition, each interviewee was given a chance to state any barriers or benefits that they believe to exist with DE at the target school. Finally, all participants were asked to share any suggestions that they may have for improving DE at the target school.

The questions chosen for each interview were generated in two separate ways. As noted in the descriptions of each interview, some of the questions directly correlate to questions asked by the National Research Center for Rural Educational Support in a
survey of over 400 rural secondary schools in the United States (Hannum et al., 2009). I
developed other questions in order to shed more light on the experience of each
individual who participated in distance education at the target school. In either case, the
combined listing of questions for each interview was approved by the committee assigned
to me and then through a pilot study process that involved a two person, non-partial
panel.

The process by which the interview questions were deemed appropriate for this
study began with approval from my committee. After the committee had approved the
questions, the interviews were field/pilot tested through a two-member, non-committee
and non-study participant panel. The test panel received the questions and sent feedback
to me. Feedback for the interview protocols from this panel consisted mainly of wording
changes, but no real changes to the content of the questions was requested. I then made
the necessary corrections and submitted to the panel for final approval. As the committee
had previously approved the interview protocols and the changes requested by the panel
were minor, upon making the wording and grammatical changes, the interviews were
deemed as acceptable for use. No interview was conducted prior to this process being
complete.

In all interviews, two digital recording devices were used to record the
conversations that took place (one for recording purposes, the other as a backup in case
there are problems with the first). I transcribed the digital file of each interview and both
the digital audio and Word files were stored on a 32 GB flash drive as well as on a 1TB
external hard drive. For the purpose of analyzing data, multiple copies of each transcribed
interview were printed. Printed copies of the interviews as well as the 32GB flash drive
that holds interviews and transcriptions were stored in a locked file cabinet located in my home.

Participant anonymity was maintained throughout the interview process. Each interviewee was assigned a code and number. The number assigned to the participant was based on the order in which the participant agreed to take part in this study. Additionally, each participant was given one of the following codes to identify the group of which they are a part: DM for decision makers, TF for teachers/facilitators, S for students, and P for parents. For instance, the first decision maker to turn in the informed consent form is referred to as participant DM1, the second as participant DM2, and so on. The first teacher/facilitator who agreed to participate is identified as TF1, the second as TF2 and so on. Students enrolled in DE courses and parents of students enrolled in DE courses were also coded using the same system (S for students and P for parents). The letter/numerical code assigned to each participant will be used to identify the interviewee in all data collection, data analysis. For reporting purposes in Chapters 4 and 5 of this document, each participant was also given a pseudonym.

Distance education course enrollment reports for the 2012-2013 school year with student names were used to identify potential participants. From the reports, each student was given a number corresponding to their appearance on the reports. The first student on the first report was #1. The second student was #2. This continued to the last student on the last report. Numbers matching those used to identify student participants were placed in a hat. Ten numbers were pulled from the hat and the students that these numbers represented were contacted about their interest in participating in this study. Once the student numbers were drawn, the numbers were placed back into the hat, and then
numbers were drawn to identify parents for this project.

For three years following the completion of this project, I will maintain all records in a locked file cabinet at my home. After this three year period, all data generated will be destroyed. All printed documents will be shredded, and all digital copies will be deleted. By destroying all documentation involving human participants and by implementing the procedures outlined above to protect anonymity, the likelihood that a person’s identity will be revealed is very minimal.

**Interview for DE Decision Makers.** Found in Appendix H of this document, the Interview for DE Decision Makers (IDM) is a collection of 13 questions designed to be asked in a semi-structured interview format. This interview form is one of four questionnaires that was used to collect data from participants in the study. Each questionnaire was designed to gather valuable information both in a general DE sense and from the particular expertise or experience grouping of the participant. The IDM questionnaire was designed to generate information to better understand the experience level of DE decision makers, the factors that determine DE decisions for the target school, how the program is evaluated, and the future aspirations of DE usage at the school. Many of the questions presented on the IDM were derived from questions found in the Distance Education Survey for Rural Schools (Distance Education Survey for Rural Schools, 2011). This survey was administered to over 400 participants in a national study conducted by the National Research Center on Rural Education Support with results published by Hannum et al. (2009). The Hannum et al. (2009) study was quantitative in design and went a long way in informing the reader about how DE is represented in rural American schools but did not go far in describing why DE had been
chosen by these schools. This study, as well as each respective interview form described herein, is designed to address why decisions regarding DE are made at the target school.

The first four questions on the IDM are designed to understand the person(s) who are responsible for making DE decisions for NCHS. Question #1, using a Likert scale of 1-10, asks the participant to rate the level of importance that they believe DE has as a supplement to the curriculum at the target school. Question #2 asks the participant what experience, if any, they have with distance education. This open ended question is derived from the need to understand who is making decisions regarding DE at the target school (i.e. Are the people making these decisions experienced/informed about DE?). Question #3, also an open question, asks the respondent to describe their current role in the decision making process. It is believed that data collected from questions following #2 may be different for individuals who serve differing roles in the decision making process, and therefore it is necessary, once again, to understand exactly who is making the decisions. Knowing how important a respondent believes DE to be may better help explain some of the thinking behind decisions that are ultimately made. Question #4 inquires as to the reasons the respondent believes that DE is used to support the curriculum at the target school.

Questions #5 and #6 inquire as to barriers that the decision maker has experienced in establishing the DE program, and its current level of usage, at the school. Question #5 asks particularly about any barriers that have been overcome in the recent past regarding DE while Question #6 asks if any barriers exist today (in simple yes/no format) and if so, what these barriers are. The bulk of data generated from these two questions will be from the open ended portions of each question though it will be interesting to note whether or
not decision makers all believe that there are real barriers to implementing DE currently. Questions #5 and #6 also are derived from questions #28-43 on the DESRS as they deal directly with barriers for DE implementation.

Questions #7-#11 on the IDM query the participant about the form that DE takes at the target school. Question #7 asks about how students and teachers are prepared for their participation in DE courses. Question #7 on the IDM is derived from questions #25-#27 on the DESRS, which inquire about the level of preparation of students in the areas of academic background, study skills, and computer skills necessary for successful completion of DE courses. Question #8 on the IDM is an open ended question and asks the decision maker about how the school measures the success (or lack thereof) of DE. It is assumed that some evaluative measure is in place and this measure would affect decisions for future DE at the target school. In addition, Questions #9 and #10 ask the participant to identify which formats (synchronous, asynchronous, and hybrid) are most used and which delivery system (Virtual School, post-secondary institution, private vendor, other) is used regularly to deliver DE content to students. Both Question #9 and Question #10 of the IDM are based on questions from the DESRS. Question #16 on the DESRS inquires as to the primary provider (delivery system) for a school’s DE program, and Question #18 on the same survey asks the respondent to check off the type, or format, of courses used at the school. Though this question does not differentiate specifically between synchronous, asynchronous, or hybrid, the format choices would fall into either of the three categories. Question #11 simply asks the participant to state ways that DE has been used at NCHS other than for regular course credit. From responses to this question, I will be able to determine if DE is used in an “outside the box” fashion and
if all decision makers are aware of the various ways that DE is being, or has been, used at the target school.

Finally, Question #12 of the IDM is another Likert scale formatted question, this time dealing with the participant’s level of satisfaction with DE at the target school. The rationale behind this question is simply to understand if those who are responsible for making DE decision at the school are satisfied with the program they have created. Using the Likert scale format, it was easy to determine a median response for the group of decision makers polled but also, I could use the individual response to this question in comparison to responses for questions #3 and #6 to determine if a correlation exists between DE satisfaction and perceived importance and if barriers remain for DE at the school. Question #12 on the IDM is derived almost directly from Question #20 of the DESRS. Question #20 of the DESRS asks respondents to rate their level of satisfaction with DE courses that have been used in the participant’s district from “Very satisfied” to “Very dissatisfied.” Question # 13 inquires as to any changes that may take place in the DE program at the target school in response to recent legislation passed by the Virginia General Assembly (HB1061), which requires all students entering the ninth grade in 2013-2014 to take at least one virtual course for completion of a standard or advanced studies diploma. The interview concludes with Question #14 and Question #15 that simply ask for the participant to add any suggestions for improving DE at the target school (#14) and to provide additional comments regarding DE at the target school that he or she may have (#15).

**Interview for Teachers/Facilitators of DE.** Found in Appendix I, the Interview for Teachers/Facilitators (ITF) of DE was designed to assist in explaining the experience
of teachers and facilitators of DE courses at the target school. From the collection of data given as responses to this semi-structured interview, a determination could be made as to the teacher/facilitator’s level of satisfaction, pre-course preparation, problems experienced, and benefits of teaching or facilitating a DE course. The ITF consists of 11 questions in varying formats.

Questions #1-3 are demographic in nature and provide illicit responses designed to give some background information on the participant. For instance, Question #1 uses a Likert scale of 1-10 to determine the respondent’s perceived level of importance of DE as a supplement to the curriculum at the target school. Knowing how important DE is to a DE teacher/facilitator may help explain other responses gathered throughout the remainder of the interview. Teachers and facilitators are asked in question #2 to give any reasons they may have for choosing to teach/facilitate DE courses at the target school. Additionally, participants are asked in Question #3 to select from predetermined groups (0-1,2-3,4-5, more than 5) the number of courses they have taught or facilitated.

Question #4 is an open ended question and asks about the level of preparation to teach or facilitate that the participant was given prior to teaching DE courses at the target school. This question is derived from the DESRS (question #39), which asks if instructional personnel were trained in using distance education. In the subsequent report generated from the results of the administration of the DESRS, Hannum et al. (2009) noted that of the schools that were currently using DE, only 33.7% stated that a lack of training for instructional personnel was a barrier for DE implementation. Of interest for this present study is to be able to determine if DE training exists for instructional personnel at the target school and what impact that training has had on the experience of
the teacher/facilitator.

Questions #5-10 of the ITF ask the participants, in varying ways, to describe their experience teaching/facilitating DE courses at the school. Question #5 is an open question that describes any problems or challenges faced by the teachers/facilitators in their DE experience. Answers to this question can be compared with responses to questions about DE barriers on the IDM and can be used to help explain levels of satisfaction with their DE experience asked later on the ITF. Question #6 is closely associated to #5 and queries the participant as to any benefits received from teaching/facilitating DE at the school. Question #6 is an open ended question as well. Question #7 asks for the participant to state his or her most and least favorite DE courses to teach/facilitate and to explain why each was chosen. Question #8 is a Likert scale formatted question with the respondent being asked to rate his or her level of satisfaction with their DE experience from 1-10, with 10 being the highest level. Questions #9 and #10 are both open questions inquiring as to if the instructor plans to teach/facilitate DE courses in the future and if there is any way that DE can be improved at the target school. Question #11 addresses the impact that new legislation (HB1061) requiring all incoming ninth graders in 2013-2014 to take at least one virtual course to complete the requirements for a standard or advanced studies diploma may have on the participant. The interview concludes with questions #12 and #13 asking if the participant has any suggestions for improving DE at the target school (#12) and to provide any additional comments that they may have at this time (#13).

**Interview for Students.** As with the first two interviews for this study, the Interview for Students who have taken DE courses (ISDE) opens by gathering
information regarding the students’ perceptions of DE and the prior history with DE (Appendix J). Question #1 is a Likert formatted question that asks the student to rate from 1-10 the level of importance (1 being the least important and 10 being most important) that they feel DE plays as a supplement to the curriculum at the target school. Question #2 simply asks the respondent to select from four groupings (0-1, 2-3, 4-5, more than 5) the number of DE courses that the student has taken.

Students are asked for their reasoning behind taking a DE course in Question #3. Question #4 inquires as to the student’s level of preparation for the DE course(s) that they have taken. This question is closely related to questions #25-#27 on the DESRS, which asks about student preparation for DE courses in the areas of academic background, study skills, and computer skills. Furthermore, in a 2010 study, Irvin et al. noted that a lack of student and instructor preparation is a potential barrier to DE implementation. Question #5 more directly assesses the barriers that the student has faced in participating in DE at the target school. The question is open and asks the student to describe any challenges he or she has faced throughout the DE experience.

Questions #6-#9 of the ISDE inquire more directly into the experience had by the student in the DE course. Questions #6 and #7 are each two-part inquiries that ask the student to state his or her favorite and least favorite DE course and then to explain why. The rationale behind such questions comes from the desire to understand why certain courses are taken and for what reasons they are taken. Questions #6 and #7 also draw from participants data on different aspects of the DE program at the target school that are more appealing to students as well as those parts of the program that may push students away. Along this same line, Question #8 is open ended and inquires as to perceived
benefits that the students believe to have received for taking part in a DE course. Question #9 simply asks the students why he or she plans to take another DE course and why. Question #10 completes this section in a Likert format asking about the student’s level of satisfaction with DE. Students will be asked to rate their level of satisfaction from 1-10, with 1 being the least satisfied and 10 being the most satisfied with their DE experience.

The ISDE concludes with three questions geared towards drawing information out of the participants that give a sense of the direction they feel the DE program at the target school should be taking. Question #11 asks the participants to describe their opinion and potential impact of the new legislation (HB1061) requiring all incoming ninth graders in 2013-2014 to complete at least one virtual course to receive a standard or advanced studies diploma. This interview protocol concludes in the same as manner as the others, with the opportunity for the participants to provide any additional comments they may have regarding DE at the target school (Question #11) and to suggest ways of improving DE at the target school (Question #12). Question #11 is particularly important for students in that this group of participants is likely to have less experience in responding to interview questions, and such a question gives them an opportunity to include information that they may have omitted earlier in the interview. The option to add comments also gives the student the chance to express something that they feel is important but possibly were not asked during the interview.

**Interview for Parents.** The Interview for parents of students enrolled in DE courses at (IPDE) was designed to illicit key data from parents as to why they chose to enroll their child in a DE course at the target school and to better understand the DE
experience from the perspective of the parent (Appendix K). In addition, it is important to first get an understanding of the parent’s perception of DE as well as their overall level of satisfaction with their child having been enrolled in a DE course. For these reasons, the IPDE represents a somewhat simple approach at better understanding DE at the target school through the parents’ eyes.

Question #1 is a Likert scale formatted question that asks the participant to rate the level of importance they assign to DE. Parents are asked to rate the level of importance from 1-10, with 1 being the least important and 10 being the most important. As somewhat of a follow-up question to the parent’s perceived level of importance of DE, Question #2 inquires from the parent the reason(s) why DE education was chosen to supplement their child’s curriculum. To understand why DE is used as extensively as it is at the target school, it is necessary to understand why students and parents choose this option for their educational needs.

The next two questions deal primarily with potential obstacles for taking DE courses at the target school. Question #3 is an open ended question that asks the parent if they feel their child was prepared to take a DE course at the school and why they feel the way they do. This is directly tied to Question #7 on the DESRS mentioned earlier in this section. Question #7 of the DESRS asks about the level of preparation for students and teachers, and Question #3 on this survey (the IPDE) simply asks the parent if they feel their child was prepared to take a DE course at the school. Question #4 more directly asks the parent if there were any barriers to their child taking a DE course or if they experienced any barriers while their child was enrolled in the course. This is an open question and is important in understanding exactly what challenges are presented in
taking DE courses from the parent’s perspective.

Another key component of the parent’s perspective that is important in understanding DE at the target school is the parent’s view of any perceived or real benefits their child received for taking part in a DE course. Question #5 asks the parent in an open ended format to explain what benefits they believe their child received from taking the DE course(s). Tied to Question #5, Question #6 is a Likert scale formatted question that asks the parent to rate their level of satisfaction with the DE course(s) their child has taken. The parent is asked to rate from 1-10 their level of satisfaction, with “1” being the least satisfied and “10” being the most satisfied. Question #7 inquires from the parent their opinions on the new legislation (HB1061) requiring ninth graders entering high school in 2013-2014 to complete one virtual course in order to graduate with a standard or advanced studies diploma. Question #8 gives the participant a chance to share any suggestions for improvement of DE at the target school. This question will be important in determining the direction DE will take at the target school. The final question presented on the IPDE, Question #9, is another open ended question and gives the parent a chance to add any additional comments they may have regarding their experience, or their child’s experience, with DE.

**Document Analysis**

In addition to semi-structured interviews, documents relating to the development and implementation of DE at the target school were collected and analyzed. Creswell (2007) listed the following as some of the documents that can be analyzed in qualitative study: letters, participant journals, researcher journals, photographs, videotapes, and public documents. According to Bowen (2009), documents can be used as a source of
background or historical information, to elicit research questions or to provide a means of following data along a timeline, and can be used as a means of verifying (or not) data collected from other research methods in a particular study. When conducting their study on the effectiveness of a credit recovery program, Franco and Patel (2011) used documents to compile grade point averages, course failures, and scores on achievement tests. In studying the organizational impact on traditional high schools incorporating distance education, Luehr (2011) used an examination of public documents to examine the target school’s rules and procedures, academic requirements, and vision about the use of technology. Documents in Lurhr’s study were used primarily to track data over time, as it reflects the use of DE at the target school, and for supporting or refuting data collected through observations and through the interview process.

Items of interest for this study were course offering guides and course descriptions, DE enrollment numbers, technology plans, school and district improvement plans, district annual budgets, DE course syllabi, student completion rates for DE courses, and standardized test scores of students who have completed DE courses. All of the documents were successfully obtained with the exception of documents relating to DE course completion. There was no accessible measure by which I or the participants could access this data. In addition to those documents, it was assumed that other relevant documents would be discovered through the research process and those would be included as well. This was not the case. Those documents previously mentioned constitute the complete listing of documents analyzed for this study. Though I currently have access to most of the documents listed, formal permission from district level administrators was sought for the purposes of keeping leaders in the district informed of
the information that was collected and used in this study.

Each document collected was assigned to a digital folder (if applicable) as well as a hard copy folder. Documents collected solely in digital form were printed. Once collected, the documents were reviewed and copies were made for later analysis. Each document was stored on a 32GB flash drive and a 1TB external hard drive. Furthermore, all digital and hard copy documents are stored in a locked file cabinet. The locked file cabinet is stored in my home. All collected documents will be destroyed three years after completion of this study.

**On-site Observations**

Beyond the collection of documents and participant interviews, it was necessary to conduct on-site observations of DE at the target school. Gall, Gall, and Borg (2005) noted that observations “involve collecting data while an individual is engaged in some form of behavior or while an event is unfolding” (p. 135). Klockow (2008) used such a method to fully investigate how fifth-graders and their teacher interacted in a democratic classroom setting. Of interest in this realm of research was the physical infrastructure present for DE usage in the school. Numbers of computers, location of computers (in a lab, library, classroom etc.), availability of Internet access, lighting, and numbers of students in a classroom setting each have some effect on the perceptions and attitudes of students and teachers involved in online courses.

For this study, I decided to study one group of students over the course of five on-site observations. This decision was made to attain a deeper understanding of the experience held by students and facilitators in the most common implementation of DE at the target school: a computer lab dedicated to all four blocks where students are
scheduled in various DE courses. The target school does employ DE in other areas, but this experience is representative of the greater percentage of student participation in the school. Other areas include a remedial math group that meets during the last period of the day and uses the Khan Academy program in conjunction with one part time teacher and a facilitator to assist students in math. Another example is a dual enrollment biology course that is taught on-site with a target school faculty member instructing students but uses the local community college’s library to conduct scientific research. Additionally, some students at the target school participate in a gifted program that is a collaborative effort with several schools in the surrounding area. In this program, target school students complete assignments with students from other schools and sometimes receive instruction from outside the target school. Each of these examples can loosely be defined as distance education and I have observed these several occasions, though not formally for the purposes of this study.

Data was collected during on-site observations with the use of a researcher generated observation protocol as suggested by Creswell (2007). The Observation Protocol (Appendix E) has areas of input for descriptive and reflective notes. An additional reflective form, the Student Engagement Observation and Reflection tool (Appendix F), was used post observation and used the notes from the Observation Protocol to pull any further data from each observation. Mack et al. (2005) described field notes as “careful, objective notes about what they see” (p.13) and advised completing the field notes as soon as possible upon completion of the observation so as to more accurately relay what had been observed. Notes from each observation were completed the same day as the observation. The notes have been stored on a 32GB flash
drive and a 1TB external hard drive as well as in a hard copy folder in a locked file cabinet. Furthermore, each field note was printed and copies were made for data analysis.

Data Analysis

**Research Question #1**: What are benefits of DE usage at the target school? To answer Research Question #1, data was collected from interviews with members of each stakeholder group (decision makers, teachers/facilitators, students, and parents), from pertinent documents, and from on-site observations. This data was analyzed using the following interpretational data analysis procedures.

I transcribed the digital audio data collected from each interview. Myself and another person not involved in this study reviewed the data collected through the interview process. I also provided a copy of the transcribed interview to each participant post interview for a member check. Once the interviewee approved the transcript (including any requested changes), data analysis commenced.

Several copies of the transcribed interviews were made to prepare for the possibility that data may eventually be used in multiple categories. Each line of the interview transcription was assigned a number. The interview data was then divided into meaningful segments. Each segment contained the interview question and the response by the participant. From these segments, codes were developed based on the similarity of information.

For instance, responses to questions pertaining to perceived benefits of DE at the target school were coded based on information given using a constant coding method. New responses were given a new code while responses that were similar to previous responses from other participants will be given a previous code. Furthermore, responses
within each subgroup were coded first by the subgroup then by the response. For example, data collected from a parent who stated that college readiness was a major benefit from her child taking a DE course at the target school were given the following code: P/CR (P represents that a parent supplied the data and CR identifies their response as college readiness). All interview responses to questions about benefits of putting into practice DE at the target school were then be analyzed so that developing themes and conclusion can be drawn from there. Following each interview, an interview review sheet was completed that addressed the setting of the interview and the interviewee and researcher behavior during the interview (see Appendix L). In addition, reflective comments on the interview along with an explanation of how the interview applies to this research question have been included in the research journal to be kept as a daily log throughout the research process.

Documents analyzed for Research Question #1 included course enrollment and course offering reports from the past four years as well as median SAT scores and post-secondary enrollment reports for DE students over the same period. Each document was analyzed for its relevance in answering each research question as found on the Document Analysis form (Appendix M). The document analysis forms were copied, and information for each research question was coded in the same manner as described for interview transcripts. From the coded information, themes were developed and conclusions were drawn. Conclusions drawn from document review were compared to those drawn from interviews and from on-site observations to develop a clear understanding of the current usage of DE at the target school.

Evidence of current DE implementation at the target school has also been
developed by analyzing data generated from five on-site observations. Data collected on the Observation Protocol (Appendix E) and the Student Engagement Observation and Reflection tool (Appendix F) have been coded, and themes have been drawn. Though I noted particular conversations and discussions within the classroom, the analysis of such discussions came from notes generated on the Observation Protocol and Student Engagement Observation and Reflection tool.

Data collected and analyzed from each of the measures mentioned above in this section was compared (triangulated) by using the Data Comparison form (Appendix G). On this form, each research question is outlined and a section for each data point has been added for ease of comparison. Conclusions for each research question have been drawn from the Data Comparison form and will be reported in Chapters 4 and 5.

**Research Question #2: What barriers exist(ed) to the implementation of DE at the target school, and how did the target school overcome identified barriers?** To answer Research Question #2, data was collected from interviews with members of each stakeholder group (decision makers, teachers/facilitators, students, and parents), from pertinent documents, and from on-site observations (as described in an earlier section in this document). This data was analyzed using the following interpretational data analysis procedures.

I transcribed the digital audio data collected from each interview. Myself and another person not involved in this study reviewed the data collected through the interview process. I also provided a copy of the transcription to the interviewee for a member check. Once the interviewee had approved the transcription (including any requested changes), data analysis commenced.
Several copies of each interview transcription were made to prepare for the possibility that data may eventually be used in multiple categories. Each line of the interview transcription was assigned a number. The interview data was will then divided into meaningful segments; each segment containing the interview question and the response by the participant. From these segments, codes were developed based on similarity of information.

For instance, responses to questions pertaining to barriers in implementing DE at the target school were coded using a constant coding method. New responses were given a new code while responses that are similar to previous responses from other participants were given a previous code. Furthermore, responses within each subgroup were coded first by the subgroup then by the response. For example, data collected from a decision maker who stated that funding was a major barrier for implementing DE at the target school received the following code: DM/F (DM would identify that the information came from a decision maker, and F signifies funding as a major barrier). All interview responses to questions about barriers to putting into practice DE at the target school were then analyzed for developing themes, and conclusions were then drawn. Following each interview, an interview review sheet was completed (Appendix L) that addressed the setting of the interview and the interviewee and researcher behavior during the interview. In addition, reflective comments on the interview along with an explanation of how the interview applies to this research question were included in the research journal as a daily log throughout the research process.

Documents analyzed for Research Question #2 included district and school improvement plans, DE course offering lists from the past four years, DE course
enrollments, and district technology plans and budgets over the same period. Each
document was analyzed for its relevance in answering each research question as found on
the Document Analysis form (Appendix M). The document analysis forms were copied,
and information for each research question was coded in the same manner as described
for interview transcripts. From the coded information, themes were developed and
conclusions were drawn. Conclusions drawn from document review have been compared
to those drawn from interviews and from on-site observations to develop a clear
understanding of the current usage of DE at the target school.

Evidence of current DE implementation at the target school has also been
developed by analyzing data generated from five on-site observations. Such evidence has
been collected using the Observation Protocol (Appendix E) and the Student Engagement
Observation and Reflection tool (Appendix F). From copies of these two forms, data has
been coded and themes drawn. The data generated from each observation was first
compared against other observations and then against the interview and document data
collected.

Data collected and analyzed from each of the measures mentioned above in this
section has been compared (triangulated) by using the Data Comparison form (Appendix
G). On this form, each research question is outlined, and a section for each data point has
been added for ease of comparison. Conclusions for each research question have been
drawn from the Data Comparison form and will be reported in Chapters 4 and 5.

**Research Question #3:** What are the implementation parameters of DE at the
target school (i.e., format choice, course providers, patterns of usage, program
evaluation measures)? To answer Research Question #3, data was collected from
interviews with members of each stakeholder group (decision makers, teachers/facilitators, students, and parents), from pertinent documents, and from on-site observations (as described in an earlier section in this document). This data has been analyzed using the following interpretational data analysis procedures.

I transcribed the digital audio data collected from each interview. Myself and another person not involved in this study reviewed the data collected through the interview process. I also provided a copy of the transcription to the interviewee for a member check. Once the interviewee approved the transcript (including any requested changes), data analysis commenced.

Multiple copies of each interview transcription were made to prepare for the possibility that data may eventually be used in multiple categories. Each line of the interview transcription was assigned a number. The interview data was then divided into meaningful segments; each segment containing the interview question and the response by the participant. From these segments, codes were developed based on similarity of information.

The only group to be interviewed directly pertaining to the implementation parameters were the decision makers. The choice of synchronous v. asynchronous or hybrid course formats as well as the choice of delivery unit (colleges, private vendors, organizations etc.) rests with the decision makers for the school district, and thus they were the only group to be asked their opinions on the matter. However, it should be noted that students, teachers, and one parent made comments during their interviews relating to the parameters of DE at the target school, and their comments have been included in the results of this study. Decision makers were asked in #9 of the Interview for DE
Decision Makers their preferred choice of course format. They were able to choose between synchronous, asynchronous, and hybrid formats and were asked why they prefer that format. The data collected with respect to which format was preferred was coded by response first in a more empirical manner. For example, all respondents who preferred synchronous formats were grouped together, all that chose asynchronous were grouped together, and the same occurred for participants who chose the hybrid format. These groupings were analyzed using descriptive statistics, including percentages for each category. From there, each format grouping was coded additionally by the reason for which the format was chosen. For example, a participant that chose the asynchronous format because it offered greater flexibility was coded as AF (A for asynchronous and F for flexibility).

Data collected from #10 on the Interview for DE Decision Makers was coded simply by the selection chosen of the delivery unit most often used for DE at the target school. Selection choices include Virtual Virginia, post-secondary institutions, private vendors, and others. Descriptive statistics were used to determine the number of responses for each category.

Documents analyzed for Research Question #3 included course enrollment and course offering guides for the past four years. Each document was analyzed for its relevance in answering each individual research question as found on the Document Analysis form (Appendix M). The document analysis forms were copied and information for each research question was coded in the same manner as described for interview transcripts. From the coded information, themes were developed and conclusions were drawn. Conclusions drawn from document review were compared to those drawn from
interviews and from on-site observations to develop a clear understanding of the current usage of DE at the target school (see Appendix G).

Evidence of current DE implementation at the target school has also been developed by analyzing data generated from five on-site observations. Such evidence was collected using the Observation Protocol (Appendix E) and the Student Engagement Observation and Reflection tool (Appendix F). From copies of these two forms, data has been and themes were drawn. The data generated from each observation was first compared against other observations and then against the interview and document data collected.

Data collected and analyzed from each of the measures mentioned above in this section have been compared (triangulated) through the use of the Data Comparison form (Appendix G). On this form, each research question is outlined, and a section for each data point has been added for ease of comparison. Conclusions for each research question have been drawn from the Data Comparison form and will be reported in Chapters 4 and 5.

**Research Question #4:** What suggestions do stakeholders have for improving DE at the target school? To answer Research Question #4, data has been collected from interviews with members of each stakeholder group (decision makers, teachers/facilitators, students, and parents), from pertinent documents, and from on-site observations (as described in an earlier section in this document). This data has been analyzed using the following interpretational data analysis procedures.

On each interview protocol, a direct question asked the participants about their suggestions for improvement in the DE program for the target school. From the
transcribed data relating to this question, codes were given to particular responses and themes were drawn based on these codes. A comparison of responses for improving DE at the target school was first conducted within each grouping of participants and then against the other three groups of participants until a reasonable collection of suggestions was determined. Of interest in this area were similarities and differences in responses from each of the four participant groups.

In addition to interview data analyzed, document analysis provided insight into the projected future of DE at the target school. For the purpose of determining a plan for the improvement of DE at the target school, the Division Improvement Plan encompassing the past four years as well as the target school’s School Improvement Plan and the Division Technology plan over the same time period were analyzed. The Document Analysis Form (Appendix M) was used to collect data from each document with respect to research questions 1-4. From this form for each document, copies were made, codes were given to pertinent information, and themes were drawn to base any conclusion developed from the review of documents.

Beyond data analyzed from document reviews and participant interviews, it was necessary to analyze data collected during the five on-site observations as they related to suggestions for improving DE at the target school. Items of interest during the observations relating to suggestions for improving DE at the target school included suggestions made by the facilitator present, student comments that were recorded, and data collected that illuminated certain problem areas in the DE computer lab. To analyze data collected during the observation process, the Observation Protocol (Appendix E) and the Student Engagement Observation and Reflection tool were used. Each form generated
for each observation was copied, and relevant data was coded. From the coded data, themes were drawn. Data was first compared within each of the five observations and then against the interview and document analysis themes for a more clear understanding of suggested improvements to DE at the target school.

Limitations

This study is limited by the size of the population studied. Studying only one school limits the potential application of any results. However, the development of DE guidelines based on these results will be applicable to many rural Virginia secondary schools.

The greatest potential limitation for this study is researcher bias. As I am an employee of the school division and the school that is under study, there are many ways in which researcher bias could have found its way into the research. One such bias was preconceptions that I may have about the development and implementation of DE at the school over the past four years. To combat this, I kept a research journal that first outlined any preconceptions that he may have had about this issue. Through the research and analysis phase of this study, I maintained this journal and noted any potential areas of bias. A third potential limitation of this study is the fact some participants, because of their previous relationship with me and because of my position as the current assistant principal of the target school, may have felt limited in the responses that they were allowed to give. This was noted on one occasion in an interview review sheet for an interview conducted with a member of the teacher/facilitator group. Every attempt was made to assure the participant that no response to a question in this study will be used for any purpose other than as a means of collecting data and that no one person will be
identified at any point for a response that they have given. This information was relayed both orally at the onset of the interview process as well as in the letter of informed consent that each participant signed (or had their parent sign) before being interviewed.

Other bias related limitations included avoiding steering data results towards a predetermined conclusion. I had to be careful not to guide results to meet his own preconceptions or predictions or to meet those that he believes would be pleasing to his superiors. For these reasons, I contracted two people qualified to review the data who were unconnected with the study. This small review committee was used to ensure that the results I derived from the data were free of bias and were reasonable descriptions of the data that had been collected.

**Trustworthiness**

It is a goal of this researcher that the results found in this study will be used by others who are stakeholders in schools similar to the target school. For this reason, it was extremely important that the methods and procedures used to collect, analyze, and report on data generated in this study were sound and led to a final product that is credible and can be used by others. To ensure that this study was in fact trustworthy in the field of education, the following methods were used: triangulation, member checks, and peer/expert reviews. Furthermore, an external audit was conducted to ensure that I had accurately and completely analyzed the data collected and the results of the study are reliable.

Credibility was achieved in this study through a number of methods. First and foremost, the data collected is presented so as to generate a picture of the reality of the experience of DE for participant. For instance, data collected from interviews was
transcribed and quoted directly in Chapter 4 of the final report on this study. For each research question, multiple examples of responses from participants were included. Recent and current documents collected were quoted as well. I generated notes during observations were included to demonstrate the current experience of students and teachers participating in DE at the target school.

Additionally, for the purpose of ensuring dependability, a description of the context and setting of each interview and observation has been included. The field notes created for each observation include data concerning the setting (location, lighting, layout of the room, time of day, etc.) and the context (number of students, synchronous/asynchronous/hybrid courses, teacher or facilitator etc.) so as to create an accurate picture of DE in action at the target school. Researcher notes, found in my researcher’s journal, regarding interviews conducted include data concerning the context and setting of the many interviews.

The accurate depiction of the circumstances surrounding the collection of data has been important in ensuring the transferability of results found in this project. For others to be able to rely on the results of this study, virtually every detail regarding the collection and analyzing of data must be described fully. This includes complete descriptions of all parts of this study, data collected, and the reasons for the determination of results as they are reported. From this information, stakeholders at schools similarly situated to the target school will be able to use the results of this study with confidence.

The confidence generated from the transferability of this study will confirm its validity. If others are able to recreate the procedures in this study and produce similar results, this will confirm that the study was conducted effectively and the results
generated are in fact reliable.

To ensure that the results of this study are reliable and trustworthy, several procedural methods were used. Among these methods was the triangulation of data to determine meaningful results. Creswell (2006) identified triangulation as a process that includes “corroborating evidence from different sources to shed light on a theme or perspective” (p. 208). Oliver-Hoyo and Allen (2006) used interviews, surveys, field notes, and reflective journals to collect data on student attitudes toward graphing activities, cooperative groups, and hands-on activities. The authors noted that in qualitative research, the construct for each data collection method may not be exactly the same, but using multiple source should help to lessen the effects of inadequacies that any one method may have (Oliver-Hoyo & Allen).

Triangulation of data in the current study was conducted by comparing themes drawn from interviews, observations, and document analysis. Appendices K and N are both forms that have been used to input information from each of the three data points. These forms allowed me to better determine if results found in one area of research are also found in other areas. The results that were repeated in multiple data sources have been deemed most reliable.

Other methods to be used to increase reliability were member checks, expert/peer reviews, and external audits. To ensure that data collected from interviews was accurate, member checks were used. Creswell (2006) identified member checking as a process by which the researcher collects and analyzes data, draws themes and conclusions from the data, and provides these findings for review by participants to ensure accuracy and credibility. In this study, prior to the use of transcribed interview data, transcriptions of
the interviews were reviewed and approved/not approved by the participant. These member checks helped to ensure that the data from interviews that was used to determine results is accurate and reliable. Once conclusions from the data were drawn, they were presented to participants for a final review of authenticity. To further increase reliability, a two member panel of education professionals not included in this study reviewed data collected and the results derived from the data. Each of these individuals currently hold an Ed.D. One works as a principal in a different county but was employed previously by the division in which the target school is a part. The other currently works as a staff member at the target school building but as the director of a separate target school program. Results generated by myself were compared to those found by the panel. Finally, this same two person panel comprised of education professionals not associated otherwise with this study will review the procedures used to collect and analyze data for this study to ensure that all necessary steps have been taken to ensure that the results are valid.

**Ethical Issues**

As this is a phenomenological study on one school and it relies heavily on people’s perceptions of their experiences, it has been extremely important to maintain a high ethical standard throughout the process. This first began with informing the school division to which the target school belongs with the parameters of the study and including that employees and students will be asked to give candid accounts of their distance education experiences. Before the project could be approved at the local level, any direct contact with students and measures implemented to maintain the privacy of participants had to be explained.
To ensure that all persons who participate in this study have complete protection in the area of privacy, no names of individual participants were used. The general term “decision maker” was used for all upper level employees while “student,” “teacher/facilitator,” and “parent” was used to describe other participants. This was outlined in the interest email/letter and in the informed consent form that all participants (or their parents) were required to sign before the commencement of any interview.

In addition to concerns about privacy with regards to reporting interview data, it was also necessary to maintain a high level of ethical concern when dealing with data generated by the collection of documents and through on-site observations. Data from documents included student names and these were safeguarded. All documents were stored securely as described earlier in this document and no identifying information was used in the reporting of data. During on-site observations, students were given numbers based on their location in the classroom and have been identified in that manner only.

Beyond the protection of privacy, the results of this research had to be protected from potential bias. As was mentioned earlier in this paper, qualified professionals not associated with study were contracted to review the results from analysis of data generated through this research. Furthermore, administrators for the school and/or school division in this study were given access to results of the data prior to its publication in the form of a completed dissertation. This helped to ensure that results from the data were not generated in such a way that is designed to be appealing to those whom were studied. In addition, I reflected regularly on his methods of data collection and analysis of the data to avoid any bias on his part. This reflective measure was documented in a research journal that will be available for review upon completion of this project.
CHAPTER 4: RESULTS

This chapter describes the results of this study from data collected via semi-structured participant interview, document analysis, and on-site observations. The results of the interviews conducted for this study will show the perceptions and opinions of distance education (DE) at the target school from the point of view of decision makers, teachers/facilitators, students, and parents of students enrolled in DE courses for the 2012-2013 school year. Findings from a thorough review of relevant documents will be presented next to either support or refute those perceptions and opinions noted from the participant groups. Data collected from five on-site observations will then be displayed to form an opinion as to the reality of perceptions and opinions documented as well as the legitimacy of the analysis of the documents. Finally, a summary of these results will be given and conclusion will be drawn from the data presented.

Interview Results

In this section, data from interviews conducted with the four participant groups will be presented. For the purpose of anonymity, each participant was given a pseudonym after he or she had been selected to participate in the study and had subsequently turned in their informed consent form. The pseudonyms given were gender specific to represent a female decision maker, male teachers/facilitators, and male students etc. Each participant was asked directly about the benefits of distance education for the school, the student, or them personally. Some data in this section was also collected from questions relating to the importance of distance education, participant satisfaction with distance education, and additional comments offered by each participant. Data from participants is
presented mostly as direct quotes, but occasionally the data has been paraphrased for better understanding.

In virtually each of the interviews conducted, the tone of the conversation was very formal to start. Both myself and the participants spoke in formal language and in complete, coherent sentences. After about three or four minutes into each interview, the tone of the conversation seemed to become more relaxed and the language more colloquial. The reason for the change to a more relaxed state is likely due to the fact that the interview process itself was a new experience for most of the participants and it took a little time for them to become comfortable. The setting was more formal than typical discussions we had had in the past, and the participants needed time to become settled. The result of the calming of nerves was probably richer responses. The responses were typically lengthier and seemed to flow more easily after the initial uneasy period had subsided.

**Research Question #1: What are the benefits of DE usage at the target school?**

**Decision Makers.** The group labeled as Decision Makers (DM) varied in their levels of experience with respect to distance education. They ranged from a relatively new administrator with little experience to a thirty year veteran who has delved into distance education as an administrator and as an instructor. Three key themes emerged from the interview data relating to the benefits of DE from the Decision Maker group. Among these are exposure to offerings not otherwise available at the school, preparedness for college, and the flexibility DE provides for students and for the school. A common thread in this area was that DE gives students a chance to take courses that
are not otherwise offered through the school. Five of the seven participants identified as Decision Makers named this benefit directly. Anne commented that,

Due to the nature of our school, with it being so small and with the teachers having to teach the core subject areas, we are limited in the number of electives that we can provide for students. And, so with the virtual courses, the Advanced Placement and the Dual Enrollment, it gives students opportunities to take courses that we otherwise would not be able to offer.

Jerry added,

…it allows us, it gives us the dual purpose of being able to address some of our higher achieving students and students that we may not have, and again its resources, may not have the facilities or resources to offer some of the higher level courses.

In a similar vein, other DM participants commented that providing these increased offerings gives students at the target school a chance to be exposed not only to different course content but also to perspectives of that content from others outside the school division and the county within which the school is located. Harold stated that,

If you can participate in a class from, with individuals from remote areas…when I say remote areas, remote locations outside of the County, they’re going to have different exposures to the topics being discussed than we have. They’re going to have a chance to input that. It could potentially sway the perspectives of the students in those classes. I think the more perspective individuals have the better. Another benefit would be exposure to a wider variety of instructors,
teachers. It keeps things fresh, it keeps things interesting. I think that would stimulate student participation, student engagement.

In addition, Sam added that this exposure to differing points of view, to different perspectives, will assist the students in the county to be more globally and culturally competent.

Beyond the benefit of being exposed to courses, content, and people they would otherwise not come in contact with, a second key theme that emerged from the data is that Decision Makers see DE as a real way to help students prepare for college. Many DM participants noted that the opportunity for students to earn college credit while still in high school was an advantage for the student. For instance, Mary stated, “The benefits to me are that students who may want to earn college credit or who may need a higher level course are given that opportunity.” Anne added, “They’re able to earn college credit which hopefully they’ll take advantage of it and they want have to take as many [General Education courses] when they go to college.” It was also discovered that through a partnership with the local community college, students in the target school’s Early Scholars program will have the opportunity to earn an Associate’s Degree before they graduate from high school. In addition to earning credits for college, distance education courses also provide an opportunity for students to grow personally in preparation for college. As Anne stated, “I think it helps out with the transition from high school to college if that’s the direction they choose to follow with being discipline and good time management skills with no one reminding you that you have a test due.”
Karen added that the exposure to different courses and course content (especially in the world of Career and Technical Education) may lead students down a career path, thus enhancing their growth.

Furthermore, according to multiple Decision Makers, DE provides for flexibility in scheduling both for the student and for the school. Jerry commented that,

What I’ve found is that with those it creates a lot of flexibility for kids to fit things into their schedule that they would not normally be able to fit. And, it provides us with options as a school to help student’s to meet their requirements.

Anne suggested that DE gives greater flexibility in course scheduling and more offerings of courses for students to take.

Other benefits noted by Decision Makers included college cost savings, the opportunity to earn high school credit as well as college credit, student competitiveness in the world in which they live, and cultural and global competency. Mary suggested that DE can be used as an alternative for some students to earn credits who otherwise may not be permitted to for behavioral reasons. Sam commented that in his past experience, he has seen DE used for the purpose of providing alternative education to students and in fact was part of one of the first schools in Virginia to incorporate such an idea.

Mary noted that the school pays for online courses for students. Anne supported this statement and added to it by saying,

I think I see kind of a trend where more students are taking the dual enrollment because, it isn’t necessarily more of a sure thing, but with all the agreements that all the community colleges have with public and private schools, for them that’s
more of a better bet because their tuition is paid for, their books are paid for. So, for some classes that’s about $500, $550 that they don’t have to pay.

In addition to the financial support for college level classes, the offerings of such have made students at the target school more competitive. Karen stated that distance education, in fact, makes students at the target school more competitive regionally, nationally, and globally. Sam noted a real advantage to DE is students’ ability to interact with the world outside of the county in which they live, and that this helps make students more culturally and globally competent.

**Teachers/Facilitators.** The experience level for the TF group in distance education varied from having only facilitated one distance remedial math program to having facilitated close to one hundred courses in a lab designed for such over the past seven years. The participants labeled as Teachers/Facilitators (TF) in this study focused on three key areas with respect to the benefits that DE provides the target school: college preparedness, increased course offerings, and several items relating to student learning benefits. Though some of the same benefits as outlined in the previous section from the Decision Maker group were present, there were a relatively large number of additional benefits added by the TFs.

College preparedness was a central theme for the TF group. Of these six teachers/facilitators of DE at the target school, four noted directly that college preparedness was a key benefit for students. Alice stated, “I think it teaches them responsibility” as opposed to coddling students too much. Ken added that “I think a lot of kids need it…especially for the dual enrollment classes they’re taking online to get prepared for college.” Furthermore, Brett suggested that because students today will need
to continue to educate themselves beyond their years in high school, distance education, or learning to learn online, is a key benefit for their future. Brett said,

Well, I mean, I think it’s kind of necessary to understand how to educate yourself electronically today. Primarily because technology has taken over, even in the education world. Most of the things that I do as a teacher, as far as Act 48 or other certification things that I have to do, I can just do online. A lot of those things are available for a whole lot less than the cost, than going to a classroom as well, and it’s more convenient. So if students know that these things are available to them, I think that would be best for their education in the future.

In addition to students being prepared for college and beyond, TFs found distance education to be beneficial in that it allows schools to offer more courses to students as well as to offer courses that students could not otherwise access. For instance, Paula stated, “I feel the students have exposure to different courses that they can possibly take. We’re a small school and it does help us broaden the offerings that we can give them.” Sharon suggested that “I think it’s very very important because I think it would allow them to take courses, especially if it’s not just remedial, if its courses that they can’t get here…” Ken saw the benefit of additional courses being offered as the possibility of students exiting high school with a college degree. He said, “The kids are able to take more classes that we’re offering at the high school level. A lot of them are graduating now with associate degrees from high school.” The opportunity to earn a college degree in high school has been a push from the Commonwealth of Virginia since 2008 when the General Assembly passed legislation to create the Early Scholars program (VDOE,
In this program, students can earn up to fifteen credits through partnerships with local community colleges in advance of their high school graduation (VDOE, 2008).

The final theme that emerged from interviews with TFs was the benefit for student learning. Five of the six teachers/facilitators interviewed made comments relating to an increased benefit in student learning through distance education. Ken stated that taking DE courses helped students learn to do research on their own. Tammy supported this statement by saying that having access to the local community college’s library was a real asset in teaching her students how to write better scientific papers. Brett stated, with reference to adding a distance education component to his course in order to differentiate instruction,

I think seeing students excel…go above and beyond and progress much further than they would have if I would have kept the class at one pace. And, even the students who struggle, to see them pass and progress on a general level.

Furthermore, Brett added that by including the distance component to his course, he was able to make use of peer tutoring. As students completed modules, they were assigned to assist others who may have been behind in their coursework either because they were struggling with the content or they had missed time and had work to make up. Sharon supported the point of the potential for differentiating instruction and added that she liked the concept of mastery learning employed by the distance program she experienced as a remedial math teacher at the target school: “But if they were working a set of problems. If they were showing mastery, it would advance them to the next level so that you’re really able to differentiate.”
Paula believed that not only did she feel that distance education adds to the learning of the student, it increases learning for teachers as well:

I think that it was a whole different challenge for me to work under those circumstances. It teaches me a lot. I’ve had to learn different skills to work with those students. So, not only was it because of the students that I loved it, but it helped me a lot.

**Students.** In total, six students participated in this study. Their experience level with distance education was considerable and varied. No student interviewed was new to distance education. Each had taken at least two DE courses (including the current semester), and one student had taken five courses that at least included a distance component. Student responses to being asked about the benefits of distance education centered on two key points: college preparedness and opportunities offered to them as high school students.

The opportunity to earn college credit while in high school was a major point of emphasis for students. Four of the six students interviewed stated directly that the opportunity to earn college credits was a benefit and was integral in their decision to take DE courses. Donna added that the school funding these courses was a real advantage as well:

It’s really great that the school pays for it. I think that’s really generous of the school. Getting it out of the way, you know. I don’t have to pay for it later and I don’t have to worry about it, it’s already done.

Rhonda echoed the statement made by Donna: “Well, I know they’re going to benefit me in college when I don’t have to pay for them because they’re free…it’s nice to have a
head start into college.” Sarah included that an added benefit of earning college credit in high school was that it did not seem like you were in a college environment.

Beyond the opportunity to earn college credit with the convenience of doing it in high school and not having to pay for it, many students commented on other aspects of college preparedness, such as the development of time management skills, the necessity to develop personal responsibility, and the use of distance education to motivate high school students to attend college. When asked directly about the benefits of his DE experience, Erin commented, “I’ve definitely learned time management.” Another important skill necessary to be successful in college, personal responsibility, was brought up by Brian: “Well, I’d definitely say the obvious benefit of it is it teaches me, it supposed to teach more self-responsibility. You know, you don’t have somebody standing over your shoulder all the time.” And lastly, Erin added that students taking distance education courses in high school may find that these courses are not too difficult, thus motivating the students to consider going to college.

The second key theme that developed through the interviews with students was the extra opportunities that distance education afforded them. An increase in course offerings, the opportunity to earn high school credit in conjunction with earning college credit, and the pace of the distance courses were all opportunities these students felt were not available to them in the regular, on-site classes. Angela discussed this as a major benefit of DE: “It would be good for people interested in things we don’t have here.” Brian stated that he had signed up for AP Government in the traditional classroom but there were not enough other students enrolled to offer the course on-site. Being able to access AP Government at the high school through Virtual Virginia allowed him to take a
course he otherwise would not have. Angela saw distance education as a means to take classes on site that she wanted while still taking classes online in order to stay on track to earn an advanced diploma. Had this option not been available, she would have had to make tough decisions relating to her schedule for her senior year and the classes she wanted to take. The flexibility and convenience of being able to earn high school credits towards graduation was important as noted by Sarah: “…because you are getting high school credits and college credits at the same time. So, I think it’s really convenient.”

Finally, one student commented on the pace of the courses she took through DE as being beneficial. Donna liked the fact that she could do work for her traditional classes in the DE lab and not fall behind in her DE coursework. Donna said,

I do like the pace. If you can find a class that you can teach yourself, it’s really easy. I like the pace, I can go at any pace pretty much. If I am having an off day, like, I can just sit in that class and work on other work. I’m not so trapped to do… I’m not on a very set schedule. It’s real lenient. I like that.

In summation, students at the target school see the real benefits of DE being getting them ready for college through credits (and having them paid for by the school) and personal development as well as the opportunities that DE affords while in high school, such as earning high school credits and being able to take courses they otherwise would not be able to.

Parents. In total, ten parents of students enrolled in DE courses at the target school for the 2012-2013 school year were asked to participate in this study. Six of them returned the informed consent forms, but only five actually participated in the interview process. Repeated scheduling conflicts led to the one parent not being able to participate.
in the study. Among this group were parents who had extensive knowledge of distance education and others who had no real understanding of distance education or the requirements that a distance education course placed on their child. According to these parents, college preparedness was the number one benefit that their children received from being enrolled in a distance education course. Other categories like increased course offerings through DE, students moving along a career path with the help of DE, and a more open mindedness in their student as a result of taking a DE course were also given as benefits of DE.

Wanda commented that she sees the real benefit of DE as “... it prepares them to further their education.” She added that the DE courses were a good way for her child to experience the level of expectation she will face next year in college. When asked why he chose a DE course for his child, Fred added,

Bottom line… because I thought it would better prepare her for getting accepted into college. I think the dual enrollment classes, not only will they help her from an education standpoint, they will help her from an application and resume standpoint when she goes to apply to colleges.

One mother, Tina, suggested that a benefit of her son being enrolled in a DE course was that it was more like a college environment and that he had contact with college professors. At the very least, she said, this would expose her son to some of the expectations he will face next year as a college freshman.

Parents also believed a major benefit to their child taking DE courses was that the increased course offerings provided opportunities for their children that otherwise would
not have been available. When asked to elaborate as to why she gave DE a ten for level of importance as a supplement to the curriculum at the school, Helen stated,

On the presumption that distance education allows the student to become educated in a course that may not be offered or is not suitable to their schedule at the high school unless they were to do it as distance education. It offers the students more opportunities.

Tina supported this statement when answering why she chose a DE course for her son by saying, “So that he could have access to courses that were not offered in the traditional setting.” Additionally, Fred commented, “We don’t have all of the resources on-site. Then if we can tap into resources that will better educate the students, then I think it’s important for us to take advantage of that.”

Finally, several parents listed benefits of potential changes in their child and their vision for their child’s future. For instance, in a post-interview discussion with Helen, she commented that distance education has the potential benefit to encourage her child, and others, down a career path by exposing the student to things she did not know were available. Helen’s interview was unique in that she was the only participant to remain after the final interview question to continue the discussion on DE. She reviewed the notes taken from the discussion and approved the inclusion of the above post-interview comments. Fred stated that an added benefit of being enrolled in distance education courses is his child’s increased open-mindedness through being exposed to different/additional parts of the world. Fred stated,

I’ve already seen a little more open-mindedness from [my daughter]. And then, being exposed to the different personalities outside of her comfort zone. You
know, she’s in class with students outside of the County and they obviously bring a different background to the classroom. Part of that exposure, I think, helps us grow as individuals.

**Research Question #2:** What barriers exist(ed) to the implementation of DE at the target school, and how did the target school overcome identified barriers?

Interview data for Research Question #2 was collected from two main sources: a direct question asking each participant of the barriers or challenges faced in their distance education experience and by pulling data questions asking for participant input with regards to improving DE at the target school. For participants that gave low numerical responses to questions pertaining to their perceived levels of importance of and satisfaction with DE at the target school, data was also collected from the follow-up questions such as “Why is that?” In addition, real and projected solutions to these barriers were recorded. Some of this data was obtained when participants responded to barriers they noted with possible corrections. Other data dealing with solutions to distance education barriers was found in questions that asked for suggestions for improvement and for participants to share any final comments. Data in this section is presented first by the participant grouping and within each grouping, barriers/challenges are listed. Following the listing barriers and challenges, solutions are presented to some of the key problem areas, and finally, each grouping concludes with a brief summary as will the section as a whole.

**Decision Makers.** Data for Research Question #2 was drawn from Decision Maker (DM) interviews by asking participants of any barriers or challenges they had experienced with DE. Data was also collected in two questions that asked about their
level of satisfaction with DE at the target school and the level of importance they gave to
DE. Both questions asked DMs to rate their satisfaction and level of importance with one
being the lowest and ten being the highest. DMs were asked the follow up question “Why
is that?” to their response, and many participants who had given DE low ratings in
satisfaction and importance elaborated as to why. Data for Research Question #2 was also
collected from the last two questions on the interview protocol that asked for suggestions
for improvement of DE at the target school and for the DMs to share any additional
comments they may have had at the time.

Of the seven decision makers (DM) interviewed, each discussed multiple barriers
to distance education at the target school. The participants also added a series of
challenges that distance education itself creates. Among these barriers and challenges,
several themes emerged, including resistance to change, the need for more high school
level credit courses, preparation for students and teachers/facilitators, technology issues,
and funding. Solutions to several of these problems were outlined as well.

Four of the seven DMs queried suggested that a major challenge to distance
education at the target school was an overall resistance to change. This resistance comes
from different groups of people within the school community and requires attention to
implement DE at the target school. Mary stated that though apprehension to take DE
courses has dissipated some in recent years, some apprehension still exists in students and
parents as well as teachers. As for resistance from teachers, Mary stated,

I question whether sometimes high school teachers wanted to have kids take
online courses. Was it the same quality as the class was here kind of thing and I
think that was probably something they had to get used to as we started adding
them in there. Because, if you say, “They aren’t going to take English 12 with you; they’re going to take English 12 online,” I think they question the quality possibly of that program.

Jerry and Harold both noted a more general resistance to change on part of stakeholders in the school. According to Jim, this is a resistance to enter the 21st century and is rooted in centuries old ways of teaching and learning:

If you change the curriculum, you change the way they interact. We’re changing the curriculum. We’re changing whose delivering it, when they’re delivering it, where they’re delivering it, how they’re delivering it. It’s a mental adjustment more than anything else. Its having a vision of an education that’s going to be completely different than what we’ve known for two, no, four thousand years.

As suggested by Sam, this resistance to change may also be found in the culture of the community that the school serves:

We have to face this; we do live in a very traditional community when it comes to considerations of potential different ideas. We live in a very diverse community when it comes to discussion of those things but when it comes to funding it, making it a reality and maybe going beyond the norm, there’s not a lot of people stepping up saying, “I want to do that.”

Sam also posed the only solution offered to resolve this challenge. He says that over time, this may change as younger people move into the county to live and into the division to work.

Funding was mentioned by three members of this group (almost half) as a potential barrier to distance education implementation. Mary stated that though funding
has not been a major issue to this point, “If for some reason the budget shrunk, that might be something that we might not be able to pay and parents may or may not be willing to pay for it.” Jim added that at one time, the division had a virtual school it ran. The money to run that program came from outside sources, and when those funds dried up, so did the program. Karen also touched on funding possibly going away when course enrollments slip in career and technical education courses, and she said that she encourages all of her CTE teachers to try to grow their programs. The fear is that some students may opt for DE courses that otherwise would have taken a CTE course and the numbers in the CTE programs would drop, thus creating a loss of funding. None of the participants claimed funding to be a barrier at this point, but for the reasons listed above, they saw the loss of funding for (or because of) DE to be a possibility.

Though funding is a potential barrier, and more funding may be required to add additional DE courses, two participants believed that a major challenge facing the school was in adding courses for high school credit only geared towards a broad student population. Jim described the issue:

Many of the classes that were offered through the state were advanced. They were for the higher level. “Hey, we can give you Calculus”. No, I need someone who can do Algebra I. I need someone who can get caught up in the summertime with this additional coursework. Can you give them World History online and get us credit? I’m not even sure how far the state’s gotten with that or making those offerings available that we can give those credit level courses as credit recovery for kids who come into school overage, need to pick up an extra credit in order to graduate on time.
Anne supported this statement and added that,

I wish we could offer courses to students that are not necessarily AP or dual enrollment. You know, if we could do something else like in the career and technical education fields, the fine and performing arts fields, or just something like that that we can offer not necessarily college level courses but distance learning opportunities for our students.

Currently the director of technology and guidance director have investigated sources from which the target school could receive DE courses that were designed for high school students and for high school credit, but no solution has yet been implemented.

An issue that may affect or delay the school from increasing its high school level course offerings (beyond funding new programs) is that five of the seven members of this group noted that teacher and student readiness and preparation were a challenge facing the school in implementing DE courses. Mary, Jim, and Harold all made the general statement that teachers need to be better prepared before teaching or facilitating DE courses. Mary and Jim also made the blanket comment that students needed to be better prepared as well. Anne and Jerry noted that the students’ level of responsibility also a factor in success through DE at the target school. Anne stated, “They had more autonomy, they had to more self-disciplined, self-directed. They had to initiate contact which I think is very difficult for some of our students to do that.” Jerry supported this statement adding,

Because, you know, kids are now responsible for their own deadlines. They’re responsible for being self-motivated; keeping on top of their assignments and
things. I see that there being some issues with students not taking responsibility to do that communication.

Anne offered a list of potential remedies to students and teachers being better prepared to participate in DE at the target school. In reference to things that are currently being done, she said,

We have it in the program of studies. When we have our classroom presentations, we discuss it with the students. When we meet with them on an individual basis, we discuss it with them as well. And if they come in and say they want to add or withdraw from a class, we also touch base with them and let them know that you have to give careful consideration because if you come out of this class and change your mind, it’s a very high percentage that you won’t be able to get back in.

Furthermore, Anne said that the career coach assigned to the target school through the community college which is partnering with the target school does, in fact, go into the lab where students are taking DE courses and give a brief training on how to navigate the community college website and courses. No solution was present for students taking Advanced Placement courses through Virtual Virginia.

Even when student and teachers/facilitators are prepared to participate in DE courses, there have been technology issues in the past that have limited access to DE. For instance, Jim noted that the target school did not have enough Internet bandwidth initially to support the number of DE courses offered, and Karen added, “I realize that Internet, the Internet capabilities, is not really where it needs to be.” Harold added that this issue is particularly troublesome for some courses that require video in their implementation,
The backbone of our school wide networks has been questionable in the past. When I say questionable, it’s been inconsistent in accessibility and its ability to pull high bandwidth, to stay online for longer periods of time which would be required if we were doing live video chatting or keeping open video connections.

Jim also stated that students not having access to wifi throughout the building limited their access to their courses to only the computer labs. Finally, both Jim and Harold stated that because the county is rural, many in the county still do not have access to reliable high speed Internet, thus making completing coursework at home difficult.

Solutions to technology issues were presented by Jim and included the fact that the school, as well as the whole division, has increased its bandwidth over the past couple of years. Furthermore, a new server has been installed to give wifi access to the Internet virtually throughout the building and can be accessed by students on their personal smart phones, tablets, and laptops. No solution was presented for the county bringing high speed Internet access to the homes of students.

Finally, the DM group contributed several additional barriers or challenges to implementing DE at the target school. Among these was using DE for alternative education for students who had to be removed from the general student population for behavior reasons, as the students may not be as motivated. Mary commented that,

We have kids who have issues where they have had to have an alternative education plan… and this is from some kids in the middle school to some kids in the high school. They may be at home online and we’ve some kids that were extremely successful with it and kids who do nothing with it and they fail
basically all the courses. They don’t finish it. No one at home is making them do it.

Some solutions to the problem of students not completing work when assigned an alternative plan through DE was also included by Mary.

We’ve contracted it out for online stuff and even though the person goes and sees them…the next year when we needed the alternative ed, we had the students come in after school. We paid a person to come in sit with them after school so they were monitoring them working on it at school several afternoons per week plus the children were supposed to do it on their own also.

The key to success for students taking alternative education courses at home via DE according to Mary has been parental involvement. Mary said, “…if you have a committed parent to it and they are really helping and making it work, they’ve done extremely well.”

Karen contributed that teacher scheduling and using human resources effectively were problems facing DE at the target school. She noted that with the target school being relatively small and having a limited staff, scheduling teachers to teach DE courses can be a problem. Karen stated that one way to help solve this issue is to offer classes within a class. She explained it as such,

I’ve been talking to them about using the online format, or using the distance education format to actually teach a class within a class. Or, to teach a Keyboarding 1 class for kids that are at that level and a Keyboarding 2 class for kids that are at that level. So therefore, you’re able to get that curriculum in there and service more students. The other thing it does, it opens up ways for those
students that go through the modules and go through what you have them to do for your class, you could certainly put them on a different program, an extension course. It kind of opens up what you can do within a semester.

Mary also mentioned the barrier that some high school students simply needed an instructor present to help them navigate the courses for which they had signed up. However, she stated that students were resilient as they seemed to help each other through this process. Finally, Anne demonstrated concern in students keeping up with the high school calendar and college calendar at the same time. No solution was given for this issue.

**Teachers/facilitators.** Data for Research Question #2 was drawn from Teachers/Facilitators (TF) interviews by asking participants of any barriers or challenges that they had faced in the DE experience. Data was also collected in two questions that asked about their level of satisfaction with DE at the target school and the level of importance they gave to DE. Both questions asked TFs to rate their satisfaction and level of importance, with one being the lowest and ten being the highest. TFs were asked the follow up question “Why is that?” to their response and many who had given DE low ratings in satisfaction and importance elaborated as to why. Data for Research Question #2 was also collected from the last two questions on the interview protocol, which asked for suggestions for improvement of DE at the target school and for the TF to share any additional comments that they may have had at the time.

Several themes developed from teacher/facilitator responses to these questions and include technology issues, a lack of preparedness for the teacher, and keeping students on task in DE classrooms. Very few solutions to these problems were presented
by the TF group. Those solutions that were given have been included following the barriers and challenges.

The major challenge according to the TF group related to technology. In fact, five of the six participants in this group stated some challenge related to technology. For instance, Alice said a challenge in her class was the constant addition of students and the lack of computers on which each one could work. Because of this, she has had to send several students to other computer labs in the building—some while other classes were ongoing—to complete their work. Though being able to send students to other labs helps with the challenge, as Alice put it, it does not solve the challenge nor does it address the need for more space and equipment dedicated to students enrolled specifically in DE courses. Tammy supported this claim after being asked for specific barriers to DE: “You know, having enough computers without having to sign up for the library.”

Other more technical barriers were given by Tammy and Brett. Tammy stated that inconsistent Internet connection caused challenges for her students. TFs more vaguely described technology problems: “Every now and then you have a glitch, or two that you have to work out with either a program or just the computer in general.” Paula commented that just learning the technology necessary for the teacher to teach the class was a problem area.

I’ve had some technology challenges, yeah, yeah. Every time I go back to do the senior [websites], I have to learn all over again how to access their sites. And yeah, it’s been a challenge for me to stay on top of my ball working with Google and working with lots of the other applications.
Paula also added that communicating with teachers and students from other schools in the collaborative gifted program that she teaches is sometimes a real challenge. Sharon stated that budgeting for access to distance programs was a problem when she research ways to assist students in her traditional math classroom. She said,

So, again, there are things out there but we have to have the resources to be able to buy the site licenses. So, for example with that, with Explore Learning, with Gizmos, yeah, I would love to be able to buy a site license so that could get my kids on that and do that.

No solutions to challenges with technology were presented with the exception of sending students to other computer labs to complete work when there were too many students for the number of computers in the classroom. This solution was given as a coping measure by both Alice and Tammy.

Lack of support, whether financial as stated by Sharon, or in general with having enough computers and working Internet, as mentioned by Tammy, proved to be a barrier as well. The lack of support in preparing teachers to teach or facilitate DE courses was mentioned by three of the six TFs interviewed. Alice described that she had little preparation for facilitating multiple dual enrollment and Advanced Placement courses over the past seven years, but she has learned over time how to manage the courses on her own. Ken claimed that he had received little training as well other than sitting down with a person who had ran a similar alternative education program and learning how to log on to student accounts and track student progress. Tammy added that she did not blame the target school for her lack of preparation to teach a dual enrollment course but did think “…the institution assumed that I could figure it out on my own. I’m not saying
that I don’t like the local community college, I’m just saying that they assumed...I think I needed training.” No real solutions were presented for teachers/facilitators receiving more training to teach/facilitate their courses, but it should be noted that Brett said he was made to take an eight-week online course to prepare him to teach an economics course sponsored by the Virginia Department of Education.

The final major theme relating to challenges that emerged from the TF group was students in online DE courses not staying on task. Commenting on one group of her students, Alice said, “I’m constantly having to tell them, ‘Ok you’re not supposed to be looking for music, you’re not supposed to be doing this.’” Alice believes that this off-task behavior is a result of her students having too much free time when they take DE courses. When asked specifically about barriers or challenges he had faced as a DE instructor, Brett stated that, “Some students who prefer to do nothing and surf the web require more attention from my I guess to make sure they’re staying on task.” No solutions were given for the problem of students remaining on task while they are in the DE classroom.

Other important challenges noted by teachers with respect to distance education related to deficiencies they found in the program with respect to negative impacts on children. Sharon felt that students missed quite a bit from not being involved in classroom discussion in their courses. She did suggest that having an adult present could be a solution to this challenge. Sharon and Ken both made the general statement that they did not believe that DE was for all students, and both seemed worried that schools may be heading in that direction. Finally, one person, Sharon, noted what may be a significant problem particularly with students taking fully online remedial programs. She said,
For a lot, like the students I particularly worked with in that Aleks program, for a lot of them, reading, if they didn’t get it, and this particular program didn’t have videos where somebody was talking. It was all reading, that they had to read. For a lot of them, I don’t think, I think that was a real challenge for them to understand. It was just working problems and if they didn’t get the concept, the explanation was in a written form and I think it was harder for them to figure out. So, I think for kids who are really struggling, that distance education has to have some type of auditory, or even a video of somebody explaining it. Some students just have to have somebody elbow to elbow practically teaching them.

**Students.** Data for Research Question #2 was drawn from Student (S) interviews by asking participants of any barriers or challenges that they had faced in the DE experience. Data was also collected in two questions that asked about their level of satisfaction with DE at the target school and the level of importance they gave to DE. Both questions asked students to rate their satisfaction and level of importance, with one being the lowest and ten being the highest. Students were asked the follow up question “Why is that?” to their response and many that had given DE low ratings in satisfaction and importance elaborated as to why. Data for Research Question #2 was also collected from the last two questions on the interview protocol that asked for suggestions for improvement of DE at the target school and for the student to share any additional comments that they may have had at the time. Students reported distractions to their learning, a lack of training prior to taking a DE course, and technology issues as the major sources of challenges and barriers to their DE experience at the target school.
Angela claimed a real problem she faced was “being in a room full of other people. It was kind of distracting because even though I could tune into music and blare…try to ignore them, it was just too much stuff going on.” Angela later commented that she would regularly go to another classroom with multiple computers to avoid distractions and to get her work done. However, Angela and another student, Brian, both commented that some of the distractions they faced came from within. Angela said that part of her problem in a DE classroom was that she tended to procrastinate and not get all of her work done when she had the chance. Brian said the Internet caused his distractions and stated,

Well, one major problem I’ve been finding is that even though I want to stay ahead of my work and stuff like that, I have a problem with staying focused ‘cause, mainly because, well, the Internet’s there and, I don’t know but, as soon as the Internet goes into the equation, my focus just shoots out the window.

A second major challenge noted by students was that they felt poorly trained to take part in a DE course. Rhonda said,

Well, when I first went into an online class, I had no idea what I was doing at first. So, I had to ask other classmates who had taken it to help me. I didn’t know how to find anything…or my assignments or anything.

Erin had similar comments about the problems she had with her first DE course:

The first one I took last year I had no clue what I was doing. When I first logged on I didn’t know how to do Blackboard or anything. I was so confused but there were other people [students] in there that had done it before so they helped.
As noted in the quotes above, the solution to this problem was to enlist the help of other students who had prior experience in navigating their DE courses. Donna noted that more training would have probably helped her get through her first DE course (DE Accounting 1) but that the real issues were the rigor of the course and the lack of preparatory knowledge she had going into the course:

So last semester I tried to take the Accounting 1 course, and I had a whole lot of trouble with it. It was really difficult. And, I did really well in my accounting experience here when I took it as an elective here, and I did really well in it. That just got really hard. It was hard to learn accounting on your own. You have to have a teacher for that. Plus, we found out later on that they skip a level of accounting so, you’re not really prepared for it before you go to that one.

Rhonda and Donna both commented on issues with technology and communication as barriers for them in the DE experience. Rhonda stated that trying to do coursework at home can sometimes be difficult:

I know when I have an assignment due and my wifi at home doesn’t work, it’s really hard. Because if I don’t get it done in class, I have to depend on my computer at home and sometimes it just doesn’t work.

Brian’s issue with technology came in the form of trying to communicate with his professor first online and then by phone:

There a lot of occasions when the instructors aren’t very helpful. They don’t seem to, because we don’t connect face to face and things like that in these online course, they don’t really stay on our issues and stuff like that, so when we ask, we have problems, it’s very hard to communicate. Like, for instance, in AP
Government, whenever I have a question or something like that, doesn’t seem to know what I’m talking about. He says, pretty much his default response to every question is “call me.” And, then he doesn’t seem to know what you’re talking about when you call him. He’s not even there most of the time.

The students did not propose any solutions to technology challenges they faced.

Lastly, Sarah noted that navigating the high school and college worlds at the same time proved to be difficult. She said,

I think the only problems I’ve experience are when you take an online class, our schedule is sometimes different than theirs so, you have to email the teacher and tell them what’s going on and make sure it’s ok with them.

Sarah did not offer a solution to this challenge.

Students interviewed found classroom distractions, technology problems, and a lack of pre-course training to be real challenges for them taking DE courses at the target school. Furthermore, at least one student did find the rigor of the college course to be too great and dropped the course prior to the point where she would have had to drop the class with an F. Two students, Brian and Sarah, did note that being in high school and taking college courses presented logistical challenges. For Brian, it was in communication with his professor. For Sarah, it was managing the schedules of the two different schools.

Parents. Data for Research Question #2 was drawn from Parent (P) interviews by asking participants of any barriers or challenges that they had faced in the DE experience. Data was also collected by two questions that asked about their level of satisfaction with DE at the target school and the level of importance they gave to DE. Both questions
asked parents to rate their satisfaction and level of importance, with one being the lowest and ten being the highest. Parents were asked the follow up question “Why is that?” to their response and many that had given DE low ratings in satisfaction and importance elaborated as to why. Data for Research Question #2 was also collected from the last two questions on the interview protocol that asked for suggestions for improvement of DE at the target school and for the parent to share any additional comments they may have had at the time. Three key challenges that were noted by this group were the student’s readiness to participate in DE courses, parents being able to keep track of their student’s progress in a college course, and technology problems relating to DE.

It should be noted that two parents, Wanda and Helen, saw no challenges or barriers with their child’s experience with DE at the target school. One parent, Fred, saw the major challenge being his daughter’s readiness to take part in a DE course. He said,

I don’t know that [my daughter] was emotionally and from a maturity standpoint, I don’t know how her current distance learning class is going to work out. I would have to say that I am a little concerned. It might be a little too much freedom in scheduling and format for her… From that standpoint, [my daughter] requires a little more direct hands on direction from the classroom. Given the opportunity goof off rather than do what she’s supposed to do, I think she’s at the point where she’s going to take advantage of that opportunity to goof off and so that concerns me.

Fred also found the lack of parental control, particularly in being able to keep up with his daughter’s grades, to be troubling. When asked why he gave a mid-grade score for his level of satisfaction, Fred stated,
…I’m used to direct contact with a teacher and maybe some teachers will say I’m used to a little too much direct contact but I’m that parent who, I’m on parent portal once a week at least. I’ll send the teacher an email to say, “I’m a little bit worried about this, how are things going, is there anything we can do to help?” I see grades on a weekly basis, and I know what’s going on. In this particular case, I don’t know if this is typical, but in this particular case, as our first experience…

Fred continued by saying,

There has not been the first grade posted on this class so far this six weeks. As someone who, I’m pretty hands on, I’m kind of a little demanding, not seeing that, I don’t feel like I have much control. From that standpoint, I’m not real crazy about not knowing.

Tina experienced a different kind of problem when her son was enrolled in an AP online course. Her challenges stemmed from not having high speed Internet access at home. Tina had this to say in response to being asked of challenges or barriers with her child’s DE experience at the target school: “The biggest issue was the lack of Internet, of high speed Internet. We had that with the engineering course he took.” She emphasized this point by adding, “The government class has things at 6 o’clock at night that he has to do, and he has to have access to 300 kb/sec, which we don’t get at home.” The solution to this problem has been to stay at school where her son can get the Internet access he needs to participate in the coursework for this class.

Issues with technology were shared by each participant group and included several avenues of technological difficulty. Among the technology challenges presented were not using the technology present effectively, not having enough equipment, not
being able to communicate with professors via the Internet at an acceptable level, and families not having high speed Internet at home. A lack of student and teacher preparation and readiness for DE courses was noted by each participant group as well. Students and two TFs noted that distractions in the classroom were a challenge for students taking DE courses. One DM and one student noted the difficulty for high school students trying to navigate between high school and college expectations and schedules. Finally, funding—as a budgetary concern, as a course enrollment issue, and as a source for procuring extra DE resources—was noted by DMs and TFs as challenges to DE though not necessarily barriers.

**Research Question #3:** What is the structure of DE at the target school, (i.e., format, course providers, patterns of usage, and program evaluation measures)?

Data was collected for Research Question #3 by asking Decision Makers for their preferred format of DE, which entity provided the most DE courses to the target school and, by asking what evaluation measures were in place at the target school. To gather data relating to DE usage at the target school, Teacher/Facilitators and Students were asked for the number of courses they had taught or taken. Parents were not asked directly for responses relating to this question though some did see the benefit of DE as being college preparation for students and thus may be enlightening as to the reasoning behind the data collected for course providers.

**Decision Makers.** Decision Makers (DM) were asked what evaluation measures (if any) were present for DE at the target school. This group was also asked to determine from a series of choices (post-secondary institutions, Virtual Virginia, private vendors, and other) which entity supplied the greatest amount of DE courses for the target school.
A question on the DM’s preferred format (synchronous, asynchronous, or hybrid) for DE was asked to determine if the preferences of DMs matched the actual courses that most students were taking. From the data collected via semi-structured interviews, several themes emerged for each of the three categories. With respect to evaluation measures, it was apparent that no formal system for evaluating DE at the target school is in place. However, all DM participants did note several ways in which DE is being evaluated, such as by grades, course enrollment, credits earned, and through the completion of course competencies. All DMs stated that post-secondary institutions provide the largest percentage of DE courses offered at the target school. Finally, a majority of participants preferred a hybrid model over either synchronous or asynchronous courses, though for varying reasons. As noted by Sam, all evaluation of DE at the target school is done informally. Because there is no formal evaluation measure in place, the offerings given by participants for this question are to be taken as suggestions rather than current practices employed by the school unless otherwise noted.

Five of the seven DM participants referenced evaluating student performance as a measure of the effectiveness of the DE program. When asked specifically about evaluation measures, Mary stated, “I think grades. I mean we haven’t had kids that have gotten really poor grades. So the thing of it is, we really haven’t had that many problems so we haven’t tried to measure.” This statement explains to some degree why there is no formal evaluation procedure for DE in place at the target school. Jerry commented, “I think that the evaluation of all programs within a school, you have to take a look at student performance and what benefit is it giving us.” Karen listed several possible areas
to look at that could be used to evaluate DE at the target school. She suggested taking a
look at

…how the students handle the distance education. Do they maintain their grades?
Compared to in class, face to face grades, are they comparable? How are they
doing on the end of course exams? How are they doing on the SOL tests that are
related to some of these online classes that they’re taking? What are their work
habits? What’s the attitude? There are some observation and some informal things
that you can look at to see if it’s effective or successful.
An evaluation of student performance did in fact take place with one particular course,
Dual Enrollment Accounting I, and it resulted in the school dropping this class from their
course offering list. As Anne stated,

I know that one thing we have done this past year is that we have removed some
of the dual enrollment classes that were in last year’s program of studies based
on student performance in some of those course. And, their reasoning for not
doing well in some of those classes. We removed the Dual Enrollment Accounting
because even though our students had taken Accounting at the high school level,
it [the face to face course] didn’t necessarily prepare them for the community
college.

Two participants commented that course enrollment numbers are another area of
investigation when evaluating a DE program. Jim offered the question, “How many kids
participate?” when asked about evaluation measures. In what can be described as an
unofficial evaluation of the DE program at the target school, Mary added,
I think the one thing I would say would be a measure of success would be the increased enrollment if that’s what you find. But, when you tell me that there are 120 students taking, not different students, but there is 120 students, I remember one year when we had 40. So, there’s obviously an increase so that would be a success and kids want to take it.

Other items noted as means of evaluating the DE program at the target school included the determination of credits earned through DE (both high school and college credits), and the successful completion of career and technical competencies towards CTE program completion offered via DE, student evaluation of the program, and the evaluation of the number of courses offered through DE that could not otherwise be offered at the target school. Jim listed many of these items when asked about DE program evaluation measures at the school. He said, “What is their evaluation of the system? How many credits are met? How many subjects are offered that we cannot offer locally? How many college, dual enrollment credits have our kids gained?” In a similar listing of ways to evaluate the DE program, Karen offered,

I think if you actually look at the competencies and how they’re being taught…it if you look at the students work habits and see if they’re able to handle the online content…If you look at the comparison of their online grades as opposed to their face to face classroom grades, I think you would probably be able to tell.

Decision Makers were also queried as to their preferred format for DE at the target school and of the seven DMs interviewed. Five specifically stated that they preferred the hybrid model, albeit for different reasons. For instance, Sam stated that he
likes the hybrid model because it empowers the learner and offers the best of both worlds.

Karen said she prefers the hybrid model because

I think that lends itself better to different learning styles of students. I think if you say that it's all online and that you kind of do the module whenever at your own pace, some students are not going to be able to handle that, to meet their deadlines.

Jerry believed that the hybrid model gave the school and the student more flexibility in meeting student needs. He said, “I would probably go with hybrid because then you would have a mixture, you would have a mixture of the two and you could tailor it to better meet the needs of your students.” Anne preferred the asynchronous model because it allowed greater flexibility for the student and the school to schedule courses, and Harold preferred synchronous courses because they offered students the opportunity to communicate more in real time with other students and with the professor.

Overwhelmingly, the hybrid model of DE delivery is preferred to either the asynchronous or synchronous models of DE instruction.

The providers of DE most used by the target school, as commented on by the DM group, are post-secondary institutions. All seven of the participants in this group noted that the local community college provided the majority of the courses offered to students at the target school. Two participants, Anne and Jerry, noted that this was because of the opportunity to earn college credit. Karen stated that the reason the community college provides most of the DE courses offered is because of a partnership between the division and the college. Two other participants, Jim and Sam, added that Virtual Virginia, which
supplies the majority of Advanced Placement courses for the school, also provides a large number of courses to students at the target school.

**Teachers/Facilitators.** Teachers interviewed for this study were not asked directly about evaluation measures, course providers, or preferred course format for DE at the target school. Decisions relating to these categories are made solely at the administrative level at the target school, and TFs have little to contribute to this part of the process. However, to determine the usage of DE at the target school, TFs were asked about the number of courses they had taught/facilitated. They were also asked to state which courses were their favorite and least favorite to teach. From the questions as to their favorite, one teacher’s response gave insight into her preferred format for DE instruction.

As demonstrated in Figure 1, the participants in this group had considerable experience in teaching or facilitating DE courses at the target school. Four of the six participants had taught or facilitated more than 4 courses while only one TF had facilitated just one course. With limited exceptions, virtually all of the DE courses offered by school were represented by this participant group.
When asked which courses were their favorites to teach, two teachers gave indication that they enjoyed teaching the course in a hybrid format. Paula stated,

It was more hands on um… at least my portion in my classroom and also because we could gather large groups of kids that could interact in, and broaden their horizons. They had to do presentations to large groups of people within their, should we say, their cohort, their peer group.

Tammy added that the student response to her course (which is in a limited hybrid format) was the reason why she favored teaching it,

I have enjoyed having students come back that take Science in college and they say, “learning how to write a scientific paper made my life a lot easier.” So, knowing that it’s for a purpose makes me like it that much more.
Reasons that TFs gave for their least favorite courses to teach or facilitate also shed light on their preferred format. For example, Tammy disliked the problems, such as scheduling events, caused by interacting with teachers and students from other schools. She said,

Just coordinating the schedules between children and two or three different schools at the same time and having kids pull the other kids along. Just, I mean, I think it’s a good skill for them to learn but I think it makes it difficult for me.

Paula added that she did not care for the role of facilitator in which she served for one of her classes because she did not get the opportunity to teach. Paula said, “I just felt that I played a very small role in what they did. I was basically just there to call someone if there was a problem. I didn’t feel like I was teaching and I wanted to teach.”

Teachers and facilitators did not give reasons for either synchronous or asynchronous courses being their favorites or least favorites to teach or facilitate. Again, they were not asked directly which format they preferred but were given the chance through explaining why they believed a course to be their favorite or least favorite to address this question.

**Students.** Students interviewed for this study had considerable experience in taking DE courses at the target school. As evidenced by Figure 2, no student was currently taking their first DE course, most had taken between 2-5 courses and, one student had taken more than five DE courses. In all, the six student participants had taken a total of 21 DE courses.
When asked which courses were their favorite courses to take and why, students overwhelmingly stated course content and course activities as the reason they liked taking individual DE classes. Two students also alluded to a hybrid format for their course as the reason it was their favorite. Rhonda noted that she liked her dual enrollment biology course because, “I like how I have a teacher and we do a lot of experiments. And it's actually like interesting.” The ability to do experiments was noted as a reason for enjoying dual enrollment biology by Erin: “I just like biology because I like science. It’s very hands on. You’re doing a lab like at least every one or two weeks.” Though the students were not asked directly to state their preference for asynchronous, synchronous, or hybrid formats, other than those mentioned above, none gave reasons for a particular course being their favorite or least favorite that indicated a format preference.
Parents. Parents of students enrolled in DE courses at the target school were not asked directly about preferred formats for DE courses, and no parent commented in such a way that would have alluded to a preference of either format choice. Decisions regarding formats of DE courses are made solely at the administrative level, and parents have no real input in this part of the decision making process.

Interview data for Research Question #3 demonstrated that participants preferred the hybrid course format over either synchronous or asynchronous courses. Reasons included student empowerment and having a teacher present to explain key points. Participants in this study also commented that the target school receives most of its DE courses through post-secondary institutions through a partnership with the local community college and through the Virtual Virginia course provided system, which is sponsored by the Virginia Department of Education. Finally, the data shows that student participants had each taken multiple DE courses and teacher/facilitator participants had taught or facilitated multiple courses as well. No formal evaluation measures for DE at the target school were known or expressed by participants. Some participants did suggest that DE is evaluated to some degree through various avenues of student performance (i.e., grades and test scores).

Research Question #4: What suggestions do stakeholders have for improving DE at the target school?

To answer Research Question #4, data was collected from each participant via a response to the direct question, “What ideas or suggestions for improvement of distance education at this school do you have at this time?” Some data for Research Question #4 was also found in responses to questions that were asked regarding barriers and
challenges encountered with DE by each participant. In responding to the challenges, interviewees would sometimes state a challenge and then give their proposed solution. From the data collected, several key themes emerged. Among these were better preparation for students and teachers, expansion of the DE program, and procedural changes that the school can make.

**Decision Makers.** Decision Makers were asked directly for suggested improvements to the DE program at the target school. From the interview data collected, it is clear that DMs hope to expand the DE program at the target school. DMs also see a process implemented that would better prepare students and teachers for participating in DE. Furthermore, DMs stated several philosophical changes that needed to be made in order to improve the DE program at the target school.

Of the seven DMs interviewed, five specifically stated that expansion of the DE program was necessary for it to improve. Jim stated simply, “It should expand.” He added that to change with the times, expansion should be done through a well thought out process:

Let’s start visioning what our school needs to look like in five years, in three years, next year, in ten years… We have to change, this is coming to us, we have to put this in their hands cause this is just starting…. Vision now. We do a lot of other meetings about the schools, do we have any time when we sit down and vision these things? Do we vision at the teacher, student, administrator, parent groups talking.
Anne noted that expansion to the DE program should come in the form of offering more high school level courses through DE: possibly in the arts and/or career and technical education.

Jerry believed that expanding the DE program would provide more opportunities to meet the needs of all students at the target school. He said,

What I would like to do is expand our offerings and do as much as we can distance learning wise, as we possibly can. I think that it gives, it gives us more flexibility, and we will be better able to serve more students in that manner.

Karen offered that expansion of the DE program should be attained by opening a second lab dedicated specifically to students taking DE courses and by creating classes within classes using DE technology. Karen stated, “I talked about the Achiever’s Lab and the fact that we do have that one room and we do have that person in there that’s overseeing it. We could easily could have a second one.” Karen also added that she thought,

…this is kind of a way for them to expand their program also give students additional options. I’ve been talking to them about using the online format, or using the distance education format to actually teach a class within a class. Or, to teach a Keyboarding 1 class for kids that are at that level and a Keyboarding 2 class for kids that are at that level.

Other suggestions to improving DE at the target school can be described either as procedural improvements that the school can make or philosophical changes that participants believe are necessary for improvement. For instance, Mary suggested that the school needs to adjusts its procedures related to DE:
I think we need to improve maybe out preparing students and the teacher or facilitator of how it all works and that the students are knowledgeable going in of the expectations and what could happen if those expectations are not met.

Mary also added that DE will be used to meet a new mandate from the Commonwealth of Virginia that all students entering ninth grade in the 2013-2014 school year have a distance education experience as a requirement for graduation: “…the other improvement area is going to be how are we going to get all these kids to have that experience, that online experience, that is a suitable experience for every child.”

Sam also advocated for the improvement of the DE program at the target school:

…this requires creative juices and you have to have somebody that takes it on and owns it and says “this is mine and I’m going to make this special. I’m going to write an article on it, I’m going to do a dissertation on it…I want this to be part of my professional portfolio.”

Among the philosophical changes that DMs felt were important in improving DE at the target school were shifting the way educators think about teaching and learning, bringing DE to the forefront of the academic discussion in the division and making the county an authority on DE. Jim stated, “If I’m going to be an educator, I’ve got to be in the 21st century. I have to try and anticipate what’s coming at us.” Jim added,

We’re changing whose delivering it, when they’re delivering it, where they’re delivering it, how they’re delivering it. It’s a mental adjustment more than anything else. Its having a vision of an education that’s going to be completely different than what we’ve known for two, no, four thousand years.
Harold suggested that the division should look to making itself an authority on DE. He also added that before the division can be an authority on DE, it would be necessary to get student input:

…open up the conversation to as many of the faculty as possible. Get their input. Get their level of desire to become involved in it and initiate this conversation as to how widespread we want it. Start the training as soon as possible and don’t implement it until we have sound hardware, software and practices so they could all be implemented at once… I think it’s something that has not been brought to the forefront and given the attention that it so deserves.

Improvements suggested by DMs fell into three basic categories: expansion of the program, improving procedures involved in implementing DE, and changing the philosophical approach to DE at the target school.

**Teachers/Facilitators.** Teachers and facilitators interviewed for this study were asked directly for ideas and suggestions for improvement of DE at the target school. Data was also collected from TFs to answer Research Question #4 from responses to Research Question #3, which asked about barriers or challenges they had experienced with regards to DE at the target school. From this data, suggestions fell into two basic categories: procedural measures that the school could take and philosophical points that they felt needed to be considered for DE to be effective.

Alice and Tammy suggested that the school ensure there is enough space and technology (computers) for all of the students that are enrolled per block/per day in DE education courses. Alice also suggested making sure the registration procedures for entering DE classes is complete in time so that all students have the books they need from
the community college to start their classes. She claimed that often students were added late to her classes and had to ask for extension on college assignments because they had not yet received the course textbook. Ken commented that better student training would be an improvement for the school and the DE program. He said,

I think probably that the course expectations be elaborated a little bit more so they know what they need to going in, and be doing when they go in instead of saying “Why am I in here? What am I supposed to be doing?”

Sharon added that improving DE at the target school would require more money. She said, “If that’s going to be something we’re going to do in the future, then there’s going to have to be money budgeted for, for distance learning.”

More philosophical suggestions for improving DE at the target school included balancing DE with more traditional learning and abstaining from turning high school into college for students. Tammy feared that too much DE, too much time in online courses, would inhibit the social growth of the high school student. She said,

I don’t think distance education is bad, I just don’t think it should be 100% just that. I think it should be that a child gets what they need in order to make it in the world today but not so much that they lose that social part like we were talking about.

The changing of the purpose and experience of high school for teenagers was a concern for Paula. She worried that high school was evolving into a place to earn college credits as opposed to a place to prepare for college. She said,

I don’t think we’ve got the answer but I think we can read the handwriting on the wall to some degree. I suppose we’re becoming more and more like your
freshman year and your second year in college if you think about it and that’s because we’ve ramped everything up because we want them to be more prepared for college. So, is high school becoming college…before college?

**Students.** Data for Research Question #4 was collected from student responses to a direct question asking for ideas and suggestions for improvement of DE at the target school as well as from student responses to a question about barriers and challenges faced in their DE experience. Student suggestions about how to improve DE at the target school were very practical in nature. Students felt that reducing distractions in the DE classroom and including more DE classes with teachers as opposed to facilitators (hybrid courses) would be an improvement. Students also believed that providing greater assistance for them to get started in online classes and increasing the amount of technological resources available would make the DE program better as well.

Two students, Angela and Brian, said that many students would benefit if the distractions present in the DE classroom were better controlled. Angela suggested one measure to control distractions in the classroom would be to open another space for students to complete their coursework. When asked directly for suggested improvements, Angela stated,

Less students in one classroom. Because I know [the facilitator] has like 30 kids crunched in her classroom at the moment and I’m sure that is really hectic. And, it’s hard to keep everyone quiet no matter, like if you’re trying to take a test or not, so… Maybe just like separate rooms or something.
Brian was hesitant to offer suggestions for improving DE at the target school but did add that, “the best thing I could say is maybe a bit stricter supervision I guess. Making sure people stay on task.”

The offering of more courses, specifically more hybrid courses, was a suggestion made by two students. Sarah stated that the DE program needs to add more courses but these courses need to have a teacher present teaching the content. When asked for suggested improvements, she said, “Maybe trying to offer more classes. Maybe teachers teaching more dual enrollment classes like…Environmental Biology.” The biology class that she had taken via DE had been instructed by a live teacher in the classroom who made use of community college resources and technology. Rhonda also stated that an improvement in DE would be made if more of the courses were taught in a hybrid format. She said that she “would like to see maybe more classes actually being brought to, like with actual teachers, like with [her teacher] because I know that’s really helpful.”

Additionally, students commented that DE would improve at the target school if more resources were dedicated to the program and if they were to get more assistance with their DE courses in the beginning. Rhonda suggested that more laptop computers would be an improvement and Erin added that making sure students are able to navigate their DE courses would enhance the DE experience overall. Donna added that the school could stop offering college courses that proved to be too difficult for high school students.

**Parents.** Parents of students enrolled in DE courses at the target school were asked directly for ideas and suggestions for improving DE at the school. In addition, some data was collected from parents as part of their responses to a question asking about
barriers and challenges related to their of their child’s DE experience at the school. From this data came several practical, or procedural, measures that parents believed would improve overall the DE program at the school. Among these measures were involving parents more in the DE process, vetting DE courses offered to students, and ensuring teachers are present for particularly difficult courses.

One parent of a student taking a class through the local community college, Fred, was particularly unhappy that students received few grades and that these grades were not accessible to the parents. When asked directly for ideas or suggestions for improving the DE program at the target school, Fred stated, “Well, like I mentioned, just communication is the main thing. Making sure that grades, assignments, things like that, are shared with the parents like we do in all the regular classes. I think that’s important.” Helen, who had stated earlier in the interview that she had had very little involvement in the DE courses her daughter had taken, also agreed that more parental involvement was necessary to improve the DE program at the high school. Helen commented that,

…I would restructure the program to include and involve parents in everything from choosing courses or the need for courses to making sure it runs smoothly. If the disconnect is the parents lack of knowledge, the best way to fix that is to get them into the program themselves.

Tina focused on the vetting of DE courses offered at the target school as a means of improving DE. Tina wants the school to review the DE courses offered to ensure that they meet the needs of the students and can be managed easily by students using the DE format. Tina stated,
I think that we should vet our classes better and make our decisions based on our student population and pick the classes that are most likely to be beneficial… It’s really hard to learn some things online. I think that’s something we have to consider. We have to really look at what things lend themselves to technology.

Tina also contributed that having a teacher in classes that are overly difficult for students and having a minimum number of students in a DE course would be beneficial. According to Tina, mandating that all DE classes have a certain enrollment would ensure that students could have class discussions and could create study groups.

Parents of students enrolled in DE courses suggested most often that their involvement was minimal and that DE at the target school would be better if parents were included more in the process. Parents also felt that some of the DE courses offered at the target school were not appropriate for high school students and that an improvement would be better vetting of these courses. Finally, parents commented that a more hybrid approach to DE that included a minimum number of students per class would be more beneficial to the students overall.

**Document Analysis Results**

For each research question stated below, several documents were reviewed to gather additional data. Among these documents were division improvement plans, school improvement plans, the program of studies guide for the target school, the division technology plan for 2010-2015, student enrollment in DE course reports, SAT score reports for students having been enrolled in DE courses, and annual division budgets for the school years beginning in 2009-2013. Data collected from these documents will be used to either support or refute data collected by various other means.
**Research Question #1: What are the benefits of DE usage at the target school?**

To assist in determining the benefits of DE at the target school, data was collected from the division improvement plan, the division technology plan, the school improvement plan, the program of studies guides for the 2011-2012 and 2012-2013 school years, the division annual budgets for the past four years, and DE course enrollment reports for school years from 2009-2013. From these documents, benefits of DE are, for the most part, not directly stated but can be deduced.

**Division annual budget(s).** The division annual budgets for the school years 2009-2013 were analyzed to determine if any specific benefits of DE were included. From a thorough review of these documents, it was determined that nowhere is the term “distance education” mentioned specifically. A reference to $25,000 being apportioned to pay a fee for dual enrollment courses found in each budget demonstrates the benefit to students that the school division pays their tuition for college credit courses. Also appearing in each of the four budgets studied is a $21,000 notation to be used to support the target school’s *Achiever’s Lab*. This is a computer lab designed to support students taking DE courses throughout the day. Other than these two notations in each division annual budget for the past four school years, no direct mention of DE was found.

**Program of Studies 2011-2012.** The Program of Studies guide is a document that outlines the school academic program as a whole as well as provides details on graduation requirements and courses that are offered for students. Included in this guide are references specific to DE and the target school. DE courses are listed in the course offering section of the guide but are not identified separately from other courses that
students may take at the target school. With regards to data for Research Question #1, the Program of Studies guide includes several bits of evidence of the benefits of DE.

Earning college credit while in high school is a benefit as pointed out several times in this document. Though not mentioned specifically as a DE program, the target school is one of many that are part of a gifted program that pulls together students and staff from several local school divisions. A description of the program and its benefits is included:

The Blue Ridge Virtual Governor’s School (BRVGS) is an academic year Governor’s School that provides a challenging and differentiated program of studies in core academic subjects emphasizing mathematics, science, and technology. The program utilizes interactive video, technology, field trips, and team teaching to create a regional community of learners from the counties of Fluvanna, Goochland, Green, Louisa, Nelson, and Orange. (p.9)

Within the Program of Studies Guide, there is a section dedicated specifically to informing students and their parents of the opportunity to earn college credit while in high school. In this section, parents and students are informed that they have the option to take dual enrollment and Advanced Placement courses, both of which can earn the student credits for college. Furthermore, students can take college credit classes during the regular school day, and “Tuition for dual enrollment courses is paid by the high school” (p. 10). These benefits are not listed as solely DE benefits; in fact, the school offers some dual enrollment and Advanced Placement courses in the traditional classroom setting and some through the DE format. However, on the very same page in the Program of Studies Guide is description of the Achiever’s Lab, which is dedicated to
serving students taking dual enrollment and Advanced Placement classes online: “In the Nelson Achiever’s Lab, students can take virtual (online) Advanced Placement (AP) and Dual Enrollment (DE) courses.” (p. 10)

Also offered to students and their parents is the opportunity to earn substantial progress towards a college degree through the Early Scholars Program run through the target school (Program of Studies, 2011). The cost savings to parents is directly listed as a key benefit of enrollment.

The Early College Scholars program allows eligible high school seniors to complete their high school diploma while earning at least 15 hours of transferable credits toward a college degree, resulting in a more productive senior year and reducing the expense of college tuition for families. (p. 11).

Students can also benefit from taking dual enrollment and Advanced Placement courses online by potentially boosting their GPA. On p. 13 of the Program of Studies guide begins a listing of courses and the quality points to the students GPA that each course carries. All dual enrollment and Advanced Placement courses are worth two quality points. Successful completion of these courses could in fact help to raise the student’s overall GPA.

Program of Studies Guide 2012-2013. Though very much the same as the Program of Studies Guide for 2011-2012, with the very same benefits mentioned in the preceding section herein, the Program of Studies Guide for 2012-2013 does add one additional offering and one formatting change that are worthy of noting. In addition to offerings presented in the guide for the previous school year, the 2012-2013 guide describes a new program, the Early College Program, in which students can not only earn
college credits but can also earn an associate’s degree through an agreement with the local community college. Many of the courses needed to complete this program are offered online. A description of the Early College Program follows:

The Early College Program is designed for high school juniors that have exhibited a dedication to academics. These students will pursue an Associate of Science Degree from Piedmont Virginia Community College (PVCC) while their junior and senior years while in high school. Classes will be offered at NCHS and taught by PVCC professors. Courses completed in this program will satisfy high school graduation requirements. (p. 11)

A key change in the formatting of this document, particularly in the course offerings section, is the addition of a designation for each course that is offered online by adding the word “online” in parenthesis to the course title and course number. This is a change from previous additions of this document where no indication of course format was given for courses offered. The benefit of adding this descriptor is for students and parents to easily identify courses that will be offered online at the target school while they are making decisions regarding the student’s schedule for the upcoming school year.

**Education Technology Plan (ETP) for 2010-2015.** Within the ETP for the target school and its encompassing school division can be found ideas that directly relate to the benefits of distance education. For instance, repeated in this document is the plan for the division to provide an Internet ready take home device for each student in the division. Giving every student an Internet ready take home device would ensure that students have something by which they can participate in DE while at home (assuming they have an Internet connection at home). Also included in the ETP are three goal
statements that address DE directly and would expand the DE offerings available to students at the target school. They are as follows:

Strategy 1.1.2: Continue discussions with PVCC (and others) to offer blended courses for HS and continue partnership with BRVGS.

Strategy 1.1.3: Continue/Extend our partnership with PVCC, Virtual VA and others for dual enrollment virtual classes and,

Strategy 1.1.4: Explore offering High School credit courses delivered virtually through the Achiever’s Lab or other staff monitored options.

Strategy 1.1.5: Provide division-wide access to Web-based content, tools, and collaborative spaces through Google applications, such as: Google Docs, GMail, Google Sites, wiki-spaces, etc., to encourage active, collaborative, and meaningful educational exchanges and opportunities, both within the classrooms and beyond the confines of the classroom. (p. 8)

Other benefits for DE at the target school are presented less directly. Suggestions such as providing virtual professional development opportunities for teachers and administrators may lead to benefits for DE students as well.

Lastly, the ETP includes a strategy statement to increase the bandwidth available to the target school as to support an increasing amount of Internet usage.

Strategy 1.2.3: Complete the upgrade of each school’s internal connections to 1 GB with full switch upgrades and partner with the Nelson County Middle Mile Broadband Grant and/or other providers to ensure increased bandwidth capacity to meet growing demands. (p. 9)
Beyond the usage of the Internet, the ETP addresses access to wireless networks in a strategy statement as well.

Strategy 1.2.4: Provide and continue to upgrade wireless access to the Internet in every school to blended “G & N” standards. (p. 9)

**Scholastic Aptitude Test (SAT) scores.** The research sought to answer Research Question #1 also by evaluating SAT scores of students who had taken DE courses at the target school. This information was difficult to attain, and the data that was collected was incomplete because only the scores of former students that had agreed to allow their SAT scores to be revealed publicly by the target school were accessible. The scores collected represented an above average score range on the SAT but will not be used in this study for the reasons mentioned above and for the lack of non-DE student SAT scores by which to make a comparison. Ultimately, there was no way to compare DE and non-DE SAT scores to determine if there was in fact a benefit for DE students on the SAT.

**Research Question #2:** What barriers exist(ed) to the implementation of DE at the target school, and how did the target school overcome identified barriers?

Documents relating to barriers for the implementation of DE at the target school reviewed included division and school improvement plans, the Educational Technology Plan for 2010-2015, and the Program of Studies Guides for the 2011-2012 and 2012-2013 school years. Many of these documents did not address barriers to DE implementation directly or at all. Of those that did mention DE directly, only the Program of Studies Guides explicitly laid out potential barriers for implementing DE to include paying for Advanced Placement tests and being required to take entrance exams for dual enrollment courses.
Division comprehensive improvement plan. The division’s comprehensive improvement plan for 2011-2013 made no mention of DE and only noted the improvement of technological skills of students and teachers as a goal. The plan did note that a goal of the division was to better prepare students for college and careers, but again, this was not specific to DE, and no direct barriers to DE could be found.

(Target) school improvement plan for 2009-2010. There was no direct mention of DE in this plan.

(Target) school improvement plan for 2010-2011. The only mention of DE related data in this document was found on page 12 and stated a strategy to register all students with the web-based SAT prep program EDGE. Registering all students for this program could very well be a barrier to its implementation.

(Target) school improvement plan for 2011-2012. No direct mention of DE was found in this document. However, there was mention of finding time for students to participate in the EDGE program which is a web based SAT prep program designed to improve SAT scores (p. 7). Finding time within the daily schedule of students to participate in such a program can be construed a barrier in that its inclusion in this document assumes that there is a need for improvement.

(Target) school improvement plan for 2012-2013. No direct mention of DE was found in this document. However, there was mention of finding time for students to participate in the EDGE program which is a web based SAT prep program designed to improve SAT scores (p. 6). Finding time within the daily schedule of students to participate in such a program can be construed a barrier in that its inclusion in this document assumes that there is a need for improvement.
Program of Studies Guide for 2011-2012. Challenges to DE in this document are presented as warnings and requirements for participating in the various avenues of DE at the target school. For instance, to participate in the local Governor’s School program, it is suggested that students understand this is a challenging academic program (p. 9). Students at the target school may earn college credit, but that credit is only transferable if the college or university they wish to attend accepts the credit (p. 9). Furthermore, the Program of Studies Guide for 2011-2012 includes several requirements and warnings related to taking dual enrollment DE courses through the local community college. These warnings and requirements apply to both on-site and online dual enrollment classes:

Prior to enrollment into a dual enrollment course, students must apply to PVCC and take the community college’s placement test. Students enrolled in Dual Enrollment classes should understand that their grades for these classes will appear on their permanent record at PVCC. Dual enrollment courses follow college add/drop policies and deadlines. (p. 10)

Students wishing to take online courses in the Achiever’s Lab at the target school are also advised that they need to “possess strong language and writing skills and have adequate technical skills and personal characteristics for success in a virtual course” (p. 10). Though this advisement is given, there is no evaluative measure required of the students to prove their proficiency with these skills.

Finally, a series of requirements are listed for students that wish to enroll in the Early College Scholars program offered at the target school:

- Earn an Advanced Studies Diploma with a Governor’s Seal;
- Earn at least 15 transferable college credits while enrolled in high school.

College credits toward the completion of this agreement can be earned by completing Advanced Placement and Dual Enrollment courses; and

- Apply and be accepted to a college or university. (p. 11)

The requirements mentioned for participation in the Early College scholars program could very well prove to be barriers for some students taking DE courses in that some may choose not to enroll in this program and not enroll in DE courses as well. The same could be said for all of the warnings and requirements for DE participation listed in this section as these could prove to limit participation in DE courses at the target school.

**Program of Studies Guide for 2012-2013.** Challenges and barriers found in this document are the very same as those that were listed above for the Program of Studies Guide for 2011-2012. After a careful review, it is apparent that the sections of the Program of Studies relating to DE have been copied and pasted to the newer year version. This is true with the exception of the inclusion of a new program offered for the first time in the 2012-2013 school year: the Early College program.

The Early College program is offered through collaboration between the target school and a local community college. In this program, students will take 15-16 college credit hours per semester during the junior and senior years of high school. Students who complete this program will leave high school having earned an associate’s degree from the local community college. Many of the courses required to complete the Early College program are offered online at the target school. Below is a listing of the requirements for participation. These requirements can be seen as barriers to DE at the target school in that they may prevent some students from enrolling in DE courses.
To participate in this program, a student must meet the following criteria:

- Students must be a rising junior in high school.
- Students must pass the PVCC Placement Test in English and Math.
- Students must have passed Algebra II by the end of their sophomore year.
- Students must have a grade point average of a 2.7 (B average) or higher.
- Students must complete an application.
- Students must pay for the program (approximately $130.00 per credit hour (15-16 credits per semester) plus the cost of textbooks). (p. 11)

**Educational technology plan 2010-2015.** A number of barriers for DE at the target school were presented in this document. Barriers included technology challenges such as increasing bandwidth, providing each student with a take-home technological device, and increasing distance education course offerings. Professional development with respect to technology and training students in the use of technology as proposals in this document allude to the fact that these too present a challenge to DE instruction in the school. Money for these offerings would also constitute a barrier to DE though no definitive statement of such was made in this document.

From a statement on meeting the vision established for the division, the following skills, though not specific to DE, could be considered barriers as they are areas for improvement:

One of our specific objectives over the next five years is to provide every student with a technological device. This will give them the opportunity to take charge of their own learning and offer them easy access to the technological world. It will also assist the teachers to be more efficient as they instruct the students day to
day. We also recognize the significance of strong technological skills for our educators themselves. It is the mission of our staff to provide the leadership and service support to insure that the vision of the 21st century learning environment is a reality. Therefore, another one of our specific objectives is to continuously offer quality professional development to foster effective technological learning environments. To meet the vision, mission, and strategic goal for our division, there will be a continuous infusion of technological thought, material, and support to allow an equitable growth towards a new paradigm of teaching and learning that ensures 21st century skill acquisition via 21st century infrastructure and support. (p. 3)

All of the above proposals will require funding to make proposals a reality. An example of such funding can be found with the digital version of this document in the form of a proposed tech budget for 2011-2015. In this section of the document, a line is dedicated to increasing the bandwidth that can be used by the division. The total for bandwidth expenditures is approximately a proposed $30,000 annually. This is an increase of about $6,000 annually and would have to be approved by appropriating powers before such an increase could be made.

Barriers to DE implementation at the target school include requirements for participation such as fees, placement tests, and grade performance. Finding time in the school day for students to take an SAT prep course also presented a challenge for the school. Furthermore, funding challenges are present for increasing technology for DE and for increasing the number and types of DE courses offered at the target school.
**Research Question #3:** What is the structure of DE at the target school (i.e., format, course providers, patterns of usage, and program evaluation measures)?

To answer Research Question #3, data was collected from course enrollment reports for students in DE classes over the past four years. The decision was made to focus on students enrolled in DE courses that were assigned to the school’s Achiever’s Lab. This decision was made because these students and courses constitute the vast majority of DE offerings at the school that have been consistently offered over the past four years. Other DE offerings are limited but available and include one period of remedial math in which students report to a computer lab to work on Khan Academy activities, courses offered on-site through the regional Governor’s School program, and a dual enrollment biology course which makes use of the local community college’s online library. Though I did visit and observe these alternative DE options, no data was used in this study with respect to this minority populous. To ascertain evaluation measures, the Educational Technology Plan for 2010-2015 was reviewed. From these documents, it was determined that most DE courses at the target school are asynchronous and are offered through the local community college. Twice as many students today are taking DE courses at the target school than just two years ago, and the only proposed evaluation measures in place are reports to be generated from the director of technology for the division on DE enrollment.

**DE course enrollment for 2009-2010.** Course enrollment reports were collected by pulling a report from the school records system that included course titles offered for the year as well as number of students enrolled and number of sections of courses offered. Student enrollment was listed directly on the report. Course sections were
determined by seeing how many DE courses were offered each year and how many blocks each course was offered for the year. The high possible number of sections for any one course was eight.

From the course enrollment report data, one can discern the provider of the course by whether it was a dual enrollment course, an Advanced Placement course, or a course offered through some other entity. All dual enrollment courses are offered through the local community college. All DE Advanced Placement courses are provided by Virtual Virginia. These constitute the vast majority of DE classes taken by students at the target school. Offerings from various other providers will be noted as well.

From this report, it was recorded that for the 2009-2010 school year, the target school offered 13 DE courses to students, and 67 students participated in DE courses offered in 36 sections. Five courses were provided by the local community college, and 6 courses were provided by Virtual Virginia. One course was provided by the University of Virginia and one other by the local Governor’s School. Psychology was offered through Virtual Virginia as an Advanced Placement course and by the local community college as a dual enrollment course. Table 1 shows the courses offered, number of students enrolled per course, and the provider of each course.
Table 1

_Courses, Sections, Students and Course Providers for Distance Education in 2009-2010._

<table>
<thead>
<tr>
<th>Course</th>
<th># of Students</th>
<th># of Sections</th>
<th>Course Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP Art History</td>
<td>1</td>
<td>1</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP English</td>
<td>1</td>
<td>1</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Government</td>
<td>10</td>
<td>5</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Human Geography</td>
<td>3</td>
<td>2</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Physics</td>
<td>1</td>
<td>1</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Psychology</td>
<td>17</td>
<td>6</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>DE Criminal Justice</td>
<td>10</td>
<td>6</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Psychology</td>
<td>11</td>
<td>5</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Sociology</td>
<td>9</td>
<td>6</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE US History I</td>
<td>2</td>
<td>2</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE US History II</td>
<td>0</td>
<td>1</td>
<td>Local Community College</td>
</tr>
<tr>
<td>UVA Digital Tech and Communication</td>
<td>1</td>
<td>1</td>
<td>University of Virginia</td>
</tr>
<tr>
<td>BRVGS Internship</td>
<td>1</td>
<td>1</td>
<td>Local Governor’s School</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>67</strong></td>
<td><strong>36</strong></td>
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</tr>
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</table>

*Note.* AP refers to Advanced Placement courses; DE refers to dual enrollment courses.

**Course enrollment report for 2010-2011.** Course enrollment reports were collected by pulling a report from the school records system that included course titles offered for the year as well as number of students enrolled and number of sections of courses offered. Student enrollment was listed directly on the report. Course sections were determined by determining how many DE courses were offered each year and how
many blocks each course was offered for the year. The high possible number of sections for any one course was eight.

From the course enrollment report data, one can discern the provider of the course by whether it was a dual enrollment course, an Advanced Placement course, or a course offered through some other entity. All dual enrollment courses are offered through the local community college. All DE Advanced Placement courses are provided by Virtual Virginia. These constitute the vast majority of DE classes taken by students at the target school. Offerings from various other providers will be noted as well.

From this report, it was recorded that for the 2010-2011 school year, the target school offered 12 DE courses to students, and 63 students participated in DE courses offered in 40 total sections. Five courses were provided by the local community college, and 5 courses were provided by Virtual Virginia. One course was provided by the University of Virginia and one other by the local Governor’s School. Psychology and US History were each offered through Virtual Virginia as an Advanced Placement course and by the local community college as a dual enrollment course. Table 2 shows the DE courses offered at the target school, the number of students enrolled per course, and the provider of each course.
Table 2  

*Courses, Sections, Students and Course Providers for Distance Education in 2010-2011.*

<table>
<thead>
<tr>
<th>Course</th>
<th>#of Students</th>
<th>#of Sections</th>
<th>Course Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP Art History</td>
<td>1</td>
<td>1</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Euro History</td>
<td>5</td>
<td>9</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Human Geography</td>
<td>3</td>
<td>2</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Psychology</td>
<td>6</td>
<td>8</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP US History</td>
<td>2</td>
<td>2</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>DE Criminal Justice</td>
<td>7</td>
<td>12</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Psychology</td>
<td>5</td>
<td>12</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Sociology</td>
<td>5</td>
<td>10</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE US History I</td>
<td>2</td>
<td>2</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE US History II</td>
<td>1</td>
<td>1</td>
<td>Local Community College</td>
</tr>
<tr>
<td>Computer Program</td>
<td>2</td>
<td>3</td>
<td>Local Governor’s School</td>
</tr>
<tr>
<td>UVA Digital Tech and Communication</td>
<td>1</td>
<td>1</td>
<td>University of Virginia</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>63</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* AP refers to Advanced Placement courses; DE refers to dual enrollment courses.

**Course enrollment report for 2011-2012.** Course enrollment reports were collected by pulling a report from the school records system that included course titles offered for the year as well as number of students enrolled and number of sections of courses offered. Student enrollment was listed directly on the report. Course sections were determined by noting how many DE courses were offered each year and how many
blocks each course was offered for the year. The high possible number of sections for any one course was eight.

From the course enrollment report data, one can discern the provider of the course by whether it was a dual enrollment course, an Advanced Placement course, or a course offered through some other entity. All dual enrollment courses are offered through the local community college. All DE Advanced Placement courses are provided by Virtual Virginia. These constitute the vast majority of DE classes taken by students at the target school. Offerings from various other providers will be noted as well.

From this report, it was recorded that for the 2011-2012 school year, the target school offered 21 DE courses to students, and 109 students participated in DE courses offered in 64 total sections. Nine courses were provided by the local community college, and 8 courses were provided by Virtual Virginia. One course was provided by the University of Virginia through the local Governor’s School and one other by the local Governor’s School itself. Psychology and US History were each offered through Virtual Virginia as an Advanced Placement course and by the local community college as a dual enrollment course. Table 3 shows the DE courses offered at the target school, the number of students enrolled per course, and the provider of each course.
Table 3

Courses, Sections, Students and Course Providers for Distance Education in 2011-2012.

<table>
<thead>
<tr>
<th>Course</th>
<th>#of Students</th>
<th>#of Sections</th>
<th>Course Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP Art History</td>
<td>2</td>
<td>2</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP European History</td>
<td>3</td>
<td>3</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Human Geography</td>
<td>5</td>
<td>3</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Physics</td>
<td>4</td>
<td>3</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Psychology</td>
<td>12</td>
<td>7</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP US History</td>
<td>2</td>
<td>2</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>DE Accounting I</td>
<td>0</td>
<td>1</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Criminal Justice</td>
<td>16</td>
<td>8</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Developmental Psychology</td>
<td>5</td>
<td>4</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE English</td>
<td>3</td>
<td>2</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Medical Terminology</td>
<td>10</td>
<td>5</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Psychology</td>
<td>7</td>
<td>4</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Sociology</td>
<td>13</td>
<td>6</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE US History I</td>
<td>4</td>
<td>3</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE US History II</td>
<td>2</td>
<td>2</td>
<td>Local Community College</td>
</tr>
<tr>
<td>Algebra I Part I</td>
<td>6</td>
<td>1</td>
<td>ALEKS</td>
</tr>
<tr>
<td>Astronomy</td>
<td>1</td>
<td>1</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>Engineering</td>
<td>4</td>
<td>2</td>
<td>Local Governor’s School/ University of Virginia</td>
</tr>
<tr>
<td>Computer Programming</td>
<td>8</td>
<td>3</td>
<td>Local Governor’s School</td>
</tr>
<tr>
<td>World Mythology</td>
<td>1</td>
<td>1</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>-----------------</td>
<td>---</td>
<td>---</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>108</td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* AP refers to Advanced Placement courses; DE refers to dual enrollment courses.

**Course enrollment report for 2012-2013.** Course enrollment reports were collected by pulling a report from the school records system that included course titles offered for the year as well as number of students enrolled and number of sections of courses offered. Student enrollment was listed directly on the report. Course sections were determined by noting how many DE courses were offered each year and how many blocks each course was offered for the year. The high possible number of sections for any one course was eight.

From the course enrollment report data, one can discern the provider of the course by whether it was a dual enrollment course, an Advanced Placement course, or a course offered through some other entity. All dual enrollment courses were offered through the local community college. All DE Advanced Placement courses were provided by Virtual Virginia. These constitute the vast majority of DE classes taken by students at the target school. Offerings from various other providers will be noted as well.

From this report, it was recorded that for the 2012-2013 school year, the target school offered 23 DE courses to students, and 124 students participated in DE courses offered in 64 total sections. Eleven courses were provided by the local community college, and 6 courses were provided by Virtual Virginia. One course was provided by the University of Virginia through the local Governor’s School and one other by the local Governor’s School itself. Students were able to enroll in three courses through Brigham Young University. Psychology was offered through Virtual Virginia as an Advanced
Placement course and by the local community college as a dual enrollment course. Table 4 shows the DE courses offered at the target school, the number of students enrolled per course, and the provider of each course.

Table 4  
*Courses, Sections, Students and Course Providers for Distance Education in 2012-2013.*

<table>
<thead>
<tr>
<th>Course</th>
<th>#of Students</th>
<th>#of Sections</th>
<th>Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP European History</td>
<td>2</td>
<td>2</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Government</td>
<td>4</td>
<td>2</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Human Geography</td>
<td>6</td>
<td>3</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Physics</td>
<td>3</td>
<td>3</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>AP Psychology</td>
<td>3</td>
<td>2</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>DE Accounting I</td>
<td>1</td>
<td>1</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Administration of Justice</td>
<td>2</td>
<td>3</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Criminal Law</td>
<td>8</td>
<td>3</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Developmental Psychology</td>
<td>9</td>
<td>5</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE English</td>
<td>14</td>
<td>6</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Finite Math</td>
<td>1</td>
<td>1</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Medical Terminology</td>
<td>13</td>
<td>7</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Psychology</td>
<td>10</td>
<td>6</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE Sociology</td>
<td>27</td>
<td>8</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE US History I</td>
<td>8</td>
<td>6</td>
<td>Local Community College</td>
</tr>
<tr>
<td>DE US History II</td>
<td>1</td>
<td>1</td>
<td>Local Community College</td>
</tr>
<tr>
<td>Computer Programming</td>
<td>3</td>
<td>1</td>
<td>Local Governor’s School</td>
</tr>
<tr>
<td>Course Type</td>
<td>AP</td>
<td>DE</td>
<td>Institution</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----</td>
<td>----</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Economics and Personal Finance</td>
<td>4</td>
<td>2</td>
<td>Virtual Virginia</td>
</tr>
<tr>
<td>Russian I</td>
<td>1</td>
<td>1</td>
<td>Brigham Young University</td>
</tr>
<tr>
<td>Russian II</td>
<td>1</td>
<td>1</td>
<td>Brigham Young University</td>
</tr>
<tr>
<td>Spanish I</td>
<td>2</td>
<td>1</td>
<td>Brigham Young University</td>
</tr>
<tr>
<td>Totals</td>
<td>124</td>
<td>67</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* AP refers to Advanced Placement courses; DE refers to Dual Enrollment courses.

**Educational Technology Plan 2010-2015.** As mentioned earlier, all evaluation of the DE program at this point is informal. Within the educational technology plan, however, there are four proposed reports designed to evaluate DE at the target school to some degree. The proposed reports were included in a section of the educational technology plan for 2010-2015 that was entitled “Summary of the Evaluation Process and Planned Update Cycle.” The following are the proposed reports:

- Report of the number of students using computers in their classrooms regularly for instruction, blended instruction, and virtual instruction during the year.
- Report of the number of blended high school/college courses offered in the district.
- Report of the number of students attending the BRVGS.
- Report the number of students taking and receiving credit for virtual college or high school courses. (p. 6)

Data collected from documents relating to the format for DE courses, DE course providers, patterns of DE usage, and evaluation measures for DE present at the target school demonstrate that DE at the school is growing in all areas. The vast majority of DE courses offered at the target school are offered in an asynchronous format and are taken
in a single classroom dedicated to students enrolled in this type of course. The school operates on a 4X4 block schedule which allows for eight class sections (blocks) that can be used solely for DE students. With 124 course enrollments for the 2012-2013 school year, this averages over 15 students per offered block. Post-secondary institutions currently provide a much greater number of DE courses than any other entity. Until the 2012-2013 school year, the number of courses provided by post-secondary institutions was very close to the number of courses offered via Virtual Virginia. Private vendors and other course providers make up a very low percentage of the total number of courses offered and student enrollments. This has been so for the time period studied (2009-2013). Courses offered, sections of courses, and student enrollments for DE courses at the target school have nearly doubled since the 2010-2011 school year, but there was only a slight increase in enrollment from the 2011-2012 to 2012-2013 school years. No formal evaluation measures for DE are in place at the target school though there are proposed annual reports noted in the education technology plan for 2010-1015 that would provide some data relating to the numbers of students involved in DE.

**Research Question #4: What suggestions do stakeholders have for improving DE at the target school?**

There was only one document reviewed for this study that addressed Research Question #4: the Education Technology Plan for 2010-2015. As noted in Research Questions #2 and #3 of this review of documents relating to DE at the target school, the education technology plan makes some proposals relating to the improvement of DE. For instance, it is proposed in this document to give each student a take home device by which they can access the Internet to complete coursework for all of their classes. This
plan also includes a plan to better train students and teachers in the use of technology, a skill that certainly would assist students taking DE courses. In addition, the education technology plan called for an increase in bandwidth to support educational technology and proposed adding a separate wifi network for the target school. The education technology plan for 2010-2015 also lists a series of reports designed to evaluate DE at the target school. These reports would give insight into the number of students taking DE courses in one form or another at the school.

**On-site Observation Results**

As proposed for this study, five on-site observations of students taking DE courses were conducted. Prior to Observation #1, I determined that it would be best to observe one class for the duration of this process and that this class would be one that met in the Achiever’s Lab dedicated to DE instruction at the target school. This class is representative of the overwhelming majority of DE offerings at the school. In total, 18 students were enrolled in 9 separate courses during the first block of the day. This group of students was enrolled in 2 Advanced Placement courses and 7 dual enrollment courses. All courses taken by students in this class were asynchronous in format. There were no other types or formats of courses represented by the class observed. The fact that these students were all enrolled in college level courses with a larger number enrolled in dual enrollment courses makes this class more representative of what DE at the target school looks like as a whole. According to the facilitator assigned to the Achiever’s Lab, each of the four classes she teaches throughout the day are very similar, and studying one group would give a pretty good picture of DE at the target school.
The classroom observed had eighteen office style computer tables arranged in a U shape with a pod of three more computer tables in the center of the U. All tables that made up the U had personal computers hooked up. There was an additional table with two computers located at the open end of the U several feet from other tables. The facilitator’s desk was located at one end of the U, and she had access to several file cabinets behind her. A separate table with a basic jet printer was located to the right of the facilitator’s desk. Beginning at the facilitator’s desk and moving around the U, students were numbered in order from 1-19. Student number 19 was seated at the pod of tables in the center of the U and was using a laptop. For the purposes of anonymity in reporting, students were assigned a gender specific pseudonym.

The facilitator and I met regularly throughout this process to determine if the findings from these observations were transferable to other classes she had facilitated. It was determined that the following findings are in fact representative of the DE experience in her lab through the day. I also visited two other classes throughout this study that can loosely be described as DE but were not included in this section as they currently represent a very low percentage of overall DE offerings at the school.

**Research Question #1: What are the benefits of DE usage at the target school?**

The benefits of DE at the target school were the students’ opportunity to earn college credit, having a facilitator present, students benefitting from each other’s previous DE experiences, and students experiencing increased flexibility with testing and coursework. All students enrolled in the class that was observed were enrolled in courses that were for college credit. This was noted in the classroom by witnessing students logging on to Virtual Virginia to take AP courses and by them logging on to the local
community college website to get into their dual enrollment courses. This activity was observed during each of the five on-site observations.

Having a facilitator, someone to assist students in navigating their courses but not to teach content, proved to be a real benefit. During several observations, the facilitator was seen emailing professors on behalf of students in her class to clarify testing concerns. Each day the facilitator would begin class by calling roll and then going over the testing schedule for the day. She had put on the chalkboard a listing of courses and test dates as a reminder for her students. During Observation #1, the facilitator explained to first time DE students how to get grades from professors who do not regularly post scores on Blackboard. This advice was repeated to Amy during Observation #3. Also during Observation #3, the facilitator assisted Julie for approximately 30 minutes in properly editing a paper for submission to a class. She was able to effectively walk the student through the process. Many of the issues faced by students during the five observations were handled directly by the facilitator instead of the students themselves.

Other issues, those primarily dealing with managing their courses, were dealt with through peer assistance. On several occasions, students were witnessed providing valuable assistance to other students. For instance, during Observation #2, S9 assisted Amy in submitting a paper for her class, and Amy helped Megan find her way to the discussion board for a class assignment. During Observation #3, there was an open discussion about an issue a couple of students were having about wanting to retake a quiz in Dual Enrollment Sociology. During the discussion, several students who had taken this course in the past commented on their experience and reassured those students currently taking the course that the professor will work with them and not to worry.
Beyond working toward college credit, having a facilitator present, and students helping each other in class, another benefit observed was flexibility for students in completing tests and assignments. During Observation #2, Ben was seen doing homework for a government class he was taking in the traditional on-campus format. In Observation #3, multiple students were witnessed working on Advanced Math homework. Neither of these students was taking Advanced Math through an online course. During Observation #1, the facilitator was heard asking two students if they preferred to take their test on that day or to wait until the next. In Observation #4, it was noted that the local community college many of the students were enrolled in courses through was on spring break and they had the flexibility to catch up on their assignments and assessments. This was a real advantage to these students in that they were still required to be at the target school and had the time to complete assignments for their traditional courses as well. Finally, in Observation #5, Sue was able to complete an experiment for her AP Psychology class that involved using six of her DE classmates.

Research Question #2: What barriers exist(ed) to the implementation of DE at the target school, and how did the target school overcome identified barriers?

Data collected for Research Question #2 showed that there were in fact many barriers or challenges present for implementation of DE at the target school. Among these barriers were various issues with technology, noise distractions, off task behaviors, college and high school scheduling conflicts, and problems with course navigation. In all five observations, students appeared to have considerable free time that may have led to many of the barriers.
The amount of free time afforded to students in the DE classroom may have been the cause for regular noise distractions. In three of the five observations conducted, regular notations made reference to talking and the classroom being generally loud. In Observation #1, six separate notations of such were made. In Observation #2, there were six as well. In Observations #4 and #5, three times (combined) students were redirected by the facilitator for excessive talking. The noise distractions were generally in the form of students talking in groups and students talking across the room to each other. On multiple occasions, the facilitator was observed redirecting students to be quiet only to repeat the directive just a few moments later. For instance, in Observation #1, the facilitator issued the command early in class, “Be quiet, we have students studying for tests today” only to have to repeat the request moments later when three boys grouped together began laughing out loud. Only in Observation #3 was there no barrier or distraction noted that related to excessive noise or talking though one student was redirected from watching a film not related to his course. It was also noted in Observation #5 that three students appeared to be playing a computer game against each other. The game was a racing game of sorts and had no connection to their coursework.

Issues with technology presented several challenges to the DE class observed as well. For instance, in Observation #5, the facilitator commented on the fact that Reagan’s computer was no longer able to recognize either the mouse or the keyboard. A person from the technology department stopped by to attempt to fix the problem, but after one unsuccessful try, he told the facilitator that the department was involved in assisting standardized testing that day and he could not stay long enough to fix the computer issue. Standardized testing for the school as a whole was still taking place during Observation
#5 when the facilitator told the class they were not to watch any video that was not directly assigned to them by their instructor for that class period. She added that if the students could watch the video another day, that would be preferable. The facilitator commented that during standardized testing, there was not enough bandwidth to support multiple students watching videos and testing that was going on at the same time.

Students also experienced problems with testing in their DE courses. During Observations #3 and #4, students commented about what they thought must be glitches in a couple of quizzes they had been assigned. According to several students in a dual enrollment criminal law course, quiz #8 was not able to be retaken. This was unique according to the students because all of the other quizzes did allow them multiple attempts. Students also noted during Observations #3 and #4 that Quiz #9 only had one question. All other quizzes had at least ten questions, and there was concern that a glitch in the course software created this problem. The facilitator emailed the professor for clarification on this issue but did not receive a response before research was concluded for this class.

In addition to potential course software glitches, the DE class observed also experienced, or commented on, software and hardware problems they had faced. As mentioned earlier, there was Reagan’s computer that stopped recognizing the mouse and keyboard. It was also noted by the facilitator that there was only one printer for the classroom and that students had to email her their assignments for her to print off on the one printer. The printer itself was an older model laser jet design. The facilitator had no scanner either. She commented that often she needs to send paper copies of completed student tests to instructors and must fax these or send them by standard mail. This is a
problem according to the facilitator because she is assigned to the lab during all four blocks of the day and has no access to a fax machine other than during her lunch break. Furthermore, it was noted in Observation #2 that students only had access to Office Libra software to create documents for print or email. This was somewhat of a problem, as Louise commented, because their professors all use Microsoft Office. Rex commented that it was a problem but not one that was difficult to fix. She said, “It’s a pain but [the documents] can be converted.”

Other barriers or challenges to DE implementation in the class observed for this study included college and high school calendar conflicts, students navigating their courses, and student frustration with limited numbers of assignments and communication of their performance on assessments with their instructors. In Observation #5, the facilitator gave a general warning to all students that they needed to make sure to keep up with assignments that were due while the target school was on spring break. The community college that provided the dual enrollment courses for the target school had spring break about a month before the students at the target school had theirs. Several students commented after this warning that they were going out of town and would not be able to access a computer or specific software during their time off.

Being able to navigate course software was a challenge for one student during the first observation for this study. Missy commented openly to the class that she did not understand what the icons meant that were on the page that showed her assignments and whether or not they had be turned in or graded. This comment sparked a five minute discussion in class that involved many students and led to the understanding that Missy simply did not know the procedures for the course. The conversation evolved into one on
course assessment requirements, and Missy noted that she really did not like the fact that her criminal law course only had two tests (a midterm and a final). She said, “Tests freak me out, double now, because that’s my entire grade.”

Research Question #3: What is the structure of DE at the target school (i.e., format, course providers, patterns of usage, and program evaluation measures)?

The class studied during observations for this study consisted of five students taking a total of two Advanced Placement courses and thirteen students taking seven different dual enrollment courses. In total, eighteen students were enrolled in nine different DE classes. All courses were asynchronous, and all were for potential college credit. Course enrollments for this class included Advanced Placement Human Geography and Psychology as well as Dual Enrollment Developmental Psychology, English, Medical Terminology, Psychology, Sociology, and US History I. This information was observed by watching students log on to their courses and by seeing the facilitator pull up her class roster for the period. No evaluation measures of DE were present with the exception of students discussing their grades and stating personal dissatisfactions with their courses.

Research Question #4: What suggestions do stakeholders have for improving DE at the target school?

During the five on-site observations a total of eight direct suggestions for improvement were recorded. Of these, six were related to technology. Other suggestions included those dealing with the school calendar and student preparation for their online courses.
During Observation #1, it was noted by the facilitator that she and the students would benefit from having access to a scanner in the classroom. She said that she is required to submit paper and pencil tests that some of her students take to their professor. A scanner would allow her scan in the documents and email them directly to the instructor. This would prevent her from finding time to fax or put the tests in the mail. This would also prevent the facilitator from leaving the classroom as she has no planning period to take care of paperwork.

Also during Observation #1, the facilitator suggested that having a printer dedicated to student computers would save time and confusion. Currently, students must send the facilitator their completed assignments and papers by email to be printed. The facilitator also commented that until two years ago, students had a printer tied to their computers but it was removed during summer cleaning and was never reconnected.

Students during Observation #2 commented that having Microsoft Office installed on all of the computers would be a benefit to them. Megan said that the Office Libra software that is currently installed on all of the computers works fine but can be tricky to convert to Microsoft Word when they are required to submit documents to their instructors. Randy said that all of his professors use Microsoft Word and making the conversion is necessary every time he creates a document that must be submitted.

During Observation #5, two suggestions for improvement of DE at the target school were made, both technology related. The suggestions arose out of problems that had occurred that day with regards to the division taking part in online standardized testing. In the first instance, students were warned against watching videos in class that day because there was limited bandwidth available as the testing consumed much of what
was available for the division. Brian commented, “Why don’t we just buy more bandwidth!” Also tied to the testing issue was the inability of a person from the technology department to be able to stay long enough to fix a problem with a computer that had stopped recognizing the mouse and keyboard. After one attempt to fix the situation with the computer, the technology department representative stated that he could not stay long enough to fix the problem, which prompted the facilitator to later say, “We need more tech support for all these computers.”

Support in the form of student preparation for DE courses was noted as well during Observation #1. One student commented that she was lost when she first tried to navigate her way around her dual enrollment criminal law course. Another student, Sara, stated that students needed “something to help them get started in their DE courses so they are not lost.”

Finally, during Observation #4, the facilitator noted that the calendars for the high school and the community college were different, and this caused confusion and delays in assignment completion for her students. As noted in the interview data section in this paper (and commented on during the observation phase), the facilitator stated that the college start date and spring break weeks were different from the corresponding dates for the high school. She suggested that the high school calendar be adapted to better match different colleges that provide DE courses to students at the target school.

**Triangulation**

The process of triangulation, as noted by Creswell (2007), is one that is designed to ensure that the results presented from data that has been collected is accurate. Creswell went on to say that “this process involves corroborating evidence from different sources
to shed light on a theme or perspective” (p. 208). For this study, triangulation has been used to compare results derived from data in each of three data points outline earlier in this chapter: interviews, document analysis, and on-site observations.

Using a researcher generated form, the Data Comparison Form (Appendix G), I listed the themes derived for each research question and each data source. This process made evident those themes that were present in all data sources, in just two data sources, or in a single data source. The themes that were present in all three data sources will be explained in detail in the summary section of this chapter. Other, less prominent themes will be noted as well as to present a more accurate picture of the experiences had by all involved in this study.

**Summary**

Each of the four research questions are restated below and include the combined findings from all three data points for this study.

**Research Question #1: What are the benefits of DE usage at the target school?**

The greatest benefit of DE at the target school that was discovered during this study is its use in preparing high school students for college. Data collected from all three sources led to this conclusion. For instance, all groups interviewed listed college preparedness as a major benefit of DE. Some saw this as the earning of college credits while others thought that experiencing courses which set higher, college-level expectations was the best preparation for students. Still others saw the fact that the division pays for college courses (and credits) as an inexpensive way for students to get a head start on their college careers.
Division annual budgets for the current year well as the past three years support that the division does in fact pay for students to take DE courses. Each of the budgets analyzed showed a $25,000 expenditure for students to take courses through the local community college. Furthermore, each of the budgets reviewed also show another $20,000 annually going to support the Achiever’s Lab at the target school. The Achiever’s Lab is where most students are assigned to take their DE courses.

An explanation of DE courses being used for college credits was outlined in both of the Program of Studies guides reviewed for this study (2011-2012 and 2012-2013). These documents presented course descriptions of DE classes, explanations of the cost savings of taking college credits while in high school, and the identification of programs that would allow students to earn up to 15 college credits during their junior and senior years of high school. Course enrollment reports for DE over the past four years also showed that most DE classes taken by students were for college credit.

The DE courses being taken by the class that was observed for this study were all college level (dual enrollment and Advanced Placement). Based on comments about only having one midterm and one final exam and the discussion of spring break occurring in March instead of April, it was apparent that these students were getting a college-like experience while they were still in high school. Discussion between the facilitator and students suggested that students may need to be more vigilant in turning in their assignments on time, a reflection of the difference in accountability between high school and college expectations.

Other benefits noted in this study include flexibility in scheduling and completing assignments, peer assistance for DE, upgrading technology, rural students being exposed
to people and ideas outside of their natural environment, and having a facilitator present in a classroom full of students taking various DE courses. Flexible scheduling was noted by decision makers, teacher/facilitators and students during the interview phase of this study as a benefit allows the school and the students to more easily meet requirements for graduation and state mandates. As noted in the Program of Studies Guides for 2011-2012 and 2012-2013, students can take DE courses throughout the day in the Achiever’s Lab, thus freeing up their class schedule for other courses. The flexibility afforded students was also recorded during the five on-site observations in the form of students completing work for their traditional, brick and mortar classes while sitting in the Achiever’s Lab where they were scheduled to take a DE course.

When students were working on their DE courses, the benefit of peer assistance was observed as well. Students regularly provide advice and counsel to other students during the time they are in the Achiever’s Lab. This was presented earlier as a possible solution to the challenge some students face of not being prepared to take a DE class. Peer assistance with DE classes was also commented on as a benefit of DE at the target school by decision makers, teacher/facilitators, and students during interviews.

Assistance from the facilitator present in the Achiever’s Lab was recorded as a benefit for students taking DE during the five on-site observations conducted. The facilitator organized a testing calendar for her eighteen students that were taking nine different DE classes. She also regularly emailed professors with questions on behalf of the students. Furthermore, the facilitator also was seen during Observation #3 providing assistance to a student that needed help in editing a paper due for her class. Having a
facilitator present was not mentioned during interviews nor found in documents reviewed but proved during observations to be worthy of recognition in this section.

One last benefit worthy of recognition in this section was the exposure for rural students to the world outside of their county. This benefit was commented on by decision makers and parents during the interview portion of the research for this study. Harold felt that DE classes gave students a better perspective from their interaction with students and instructors outside of the school. Sam believed that DE courses helped students become more globally and culturally competent and prepared them to be more informed citizens. One parent, Fred, stated that he thought the DE class that his daughter was taking opened her mind to ideas that she had previously taken a less open approach to. Tina stated that she liked the exposure her son had to different professors and that, good or bad, this was preparing him for what he would face in college. The concept of exposure to the outside world was not identified in documents reviewed but was observed in the Achiever’s Lab by way of students participating in discussion board posting for the various classes that they were taking.

In summary, the key benefit of DE at the target school was the preparation for college of students enrolled in these types of classes. Students also benefited by being exposed to the outside world from the rural setting of the target school. The school and its students benefitted from increased flexibility provided by having students enrolled in so many asynchronous DE courses. Finally, though some students mentioned a lack of preparation for DE courses prior to taking their first class online, peer assistance was recognized by several participants, including students, as a real benefit of taking DE classes at the school.
Research Question #2: What barriers exist(ed) to the implementation of DE at the target school, and how did the target school overcome identified barriers?

Technology posed the greatest challenge or barrier to DE for the target school in the following ways: funding, communication, lack of equipment, lack of effective usage, and the lack of high speed Internet at home for students. This was an odd determination in that the division currently boasts having one computer for every two students in the county (Snapshot, 2012). However, the growth of DE at the target school might itself be a cause to the conclusion that technology poses the greatest challenge to implement.

In all three data sources, technology was noted as a primary concern for DE implementation. From interviews, all four groups claimed some form of technological problem as being significant. For example, students and teachers/facilitators each commented that not having enough equipment and appropriate software were challenges. Parents and decision makers saw the lack of high speed Internet in the county as a problem for students wishing to work on assignments for DE courses when at home. DMs found the lack of effective use of technology and the need for more bandwidth as problem areas.

A need for increased bandwidth for the division as a whole was noted as part of the review of the Education Technology Plan 2010-2015. In this document, the offering of more high school credit courses via DE and providing each student with a take-home Internet device were determined to be goals but could also prove to be financial hurdles as well. A review of the proposed budget for the technology department included in the digital version of the Education Technology Plan 2010-2015 showed over $230,000 in
needed funds for the acquisition of software and hardware for the school (not all of which would be for DE).

Financing DE at the target school was also noted during interviews with decision makers and teacher/facilitators. Funding challenges for DE presented by these two groups were for increasing technology and course offerings dedicated to expanding DE at the target school and the purchase of particular software that could connect students to content outside of their school. No funding issues were seen or commented on during the five on-site observations other than the fact that the facilitator wished for a printer dedicated to student computers and a scanner for her to assist in sending in completed student tests.

Student and teacher preparation for participation in DE courses was, however, seen and commented on as a challenge throughout this study. Three of four interview groups commented that students needed to be better prepared (trained) to take DE courses at the target school. Mary stated that both students and teachers/facilitators needed more training. Rhonda commented that she would have had an easier time submitting logging on to her first DE course had she had some kind of training prior to beginning the class. Five of the six teachers/facilitators interviewed said that they had no formal training prior to their participation in a DE course. Only one teacher, Ken, was asked to take an eight week course that got him ready to teach an online economics class that was provided by the Virginia Department of Education.

Teacher and student preparation was also listed as a goal in the Educational Technology Plan 2010-2015. Though not stated specifically as preparation for taking or teaching DE courses, the Educational Technology Plan 2010-2015 did discuss the need
for faculty and students to increase their technological skill levels. This document also included using virtual means in achieving the goal of improving the technological abilities of students and teachers at the target school.

During the five on-site observations, a lack of preparation for DE courses was seen regularly regarding the students. The facilitator commented that she had been doing this for many years and did not appear to have any real problems with navigating the courses her students were taking. Students, on the other hand, did demonstrate that they could have benefited from better pre-course preparation. For instance, there was a lengthy discussion during Observation #2 begun by Missy that stemmed over her not knowing what the icons referred to on the grade book page of her course. She had thought that the icon she saw beside her submitted assignment meant that she had received a 100% on an assignment, but as another student pointed out, the icon simply meant that the assignment had been turned in on time.

Students demonstrated that they did not understand how to retrieve their grades for the DE classes they were taking. During Observations #1, #3, and #4, the facilitator was heard explaining to students that they needed to contact their instructors directly to ask for grades. This was particularly the case for midterm exams for these courses.

The regular discussions dealing with course navigation led, in part, to some of the noise distractions noted during all but one of the five on-site observations. For example, Donna asked the facilitator (quietly) in Observation #1 if she could help quiet down the class. This request was seconded by Rhonda and Angela by way of a pleading look that each gave when the request was made. The facilitator regularly had to ask the class to quiet down and get to work during the five observations.
During interviews with two teachers who had instructed DE courses at the school, talking and off task behaviors were listed as challenges to DE when asked directly about barriers that had been overcome and those that were still present at the target school. Brett stated that an issue he had with the remedial math course he was currently facilitating was that students seemed to have too much time on their hands and often would start talking and distracting others. Ken also noted that excessive talking seemed to disrupt his class on a fairly regular basis. One student commented during the interview phase that she had a much easier time with her course when she was moved out of Brett’s class to work on her course in the library. The move was made because too many students had been assigned to Brett’s class but seemed to work well for this student. Another student, Brian, said that he was easily distracted whenever he had access to the Internet and that his off task behaviors were of his own doing.

Another distraction met by students in DE classes was managing the different calendars of the target school and the colleges. During interviews, Mary noted that this was an issue for the target school. Sarah also commented that operating as a student using both calendars was sometimes a problem. During Observation #3, a class discussion was recorded on the topic of spring break for high school students in college classes. The facilitator commented that though the local community college was on spring break, students who had not completed the midterm for their courses needed to do so within the next couple of days. She also stated that the target school’s spring break was only a couple of weeks away and that students would need to keep up with their assignments even though the students were on vacation. One student, Jimmy, stated that he would be out of town and could not complete his assignments during the target school’s spring
break. He was advised to work ahead on his list of assignments so that all items due would be turned in prior to him going out of town.

Lastly, and found only in documents reviewed for this study, was the requirements for participation in DE courses at the target school. In the Program of Studies Guide for 2011-2012, parents and students were advised that students wishing to take DE courses in the Achiever’s Lab at the school needed to understand that these were higher level courses and required motivation and “strong language and writing skills and have adequate technical skills and personal characteristics for success in a virtual course” (p. 10). Students and parents were also advised that to take dual enrollment courses through the local community college, students would first need to pass a placement exam. Furthermore, in the Program of Studies Guide for 2012-2013, a listing of requirements for entrance into the Early College program stated students needed a 2.7 GPA or better and had to pass the local community college’s placement tests in math and English to be considered for this program. In addition, it was noted in this guide that students who took part in the Early College program would be assessed a $130 per credit hour fee to take these dual enrollment courses. Lastly, the cost of taking Advanced Placement course exams was listed as an expense. Students taking AP courses in the Achiever’s Lab would have their tests paid for, but if they dropped the class after the deadline to withdraw, they would be assessed a $75 fee.

The barriers for DE implementation found in this study included issues with technology, managing college and high school calendars simultaneously, distractions in the DE classroom, requirements for taking DE courses, and the preparation of students and teachers/facilitators to participate in DE classes. Problems with technology and the
preparation of students and teachers/facilitators were noted in all three data sources used to collect evidence to answer Research Question #3. Data relating to distractions in the classroom and the navigation of school calendars were found only in interview responses and through direct observation of a DE classroom. A listing of requirements for taking DE courses was only found in the Program of Studies Guides for 2011-2012 and 2012-2013. It should be noted that these requirements were never commented on by the students upon whom the requirements were placed.

**Research Question #3: What is the structure of DE at the target school (i.e., format, course providers, patterns of usage, and program evaluation measures)?**

**Interviews.** The format and structure of DE at the target school was determined by collecting interview data, analyzing documents, and conducting five on-site observations. During the interviews, decision makers were questioned directly as to their preferred DE format (synchronous, asynchronous, or hybrid), which entity provided the greatest number of DE courses for students, and what measures of evaluation were present for the DE program at the target school. Other interview groups made comments relating to these questions, typically when asked for suggestions to improve DE at the target school as these questions were not directly presented to them. Though asynchronous courses were mentioned by some DMs, this group overwhelmingly chose the hybrid format as the preferred method of DE instruction. The choice of a hybrid format was supported also by two students who suggested an improvement for DE at the target school would be to have more DE classes where a teacher was present to assist in understanding content. One parent also made the very same comment.
Decision makers also identified post secondary institutions as the main provider of DE courses at the target school. They stated that the local community college provided the largest number of DE classes and that other colleges and universities provided additional DE classes taken by students at the school. Decision makers noted that Virtual Virginia provided the second most number of courses and private vendors supplied very few courses taken by students at the target school.

No decision maker was aware of any formal measure of evaluation for DE at the target school. Sam noted specifically that “all evaluation measures are informal at this point.” Jerry, among others, suggested that evaluation of DE takes place through an informal review of student performance in DE courses. Grades earned in DE classes were noted most often by DMs as a way to evaluate DE at the target school. No other participant group commented on evaluating DE at the school.

Documents. Documents reviewed for Research Question #3 showed that a vast majority of the DE courses offered at the target school were asynchronous and more students participate in asynchronous courses than any other format. Document analysis also revealed that post-secondary schools provide the major portion of courses offered to students and that Virtual Virginia is consistently a close runner up in this category. Only in the Education Technology Plan for 2010-2015 is there any mention of measures used to evaluate DE at the target school.

A review of the Program of Studies Guides for 2011-2012 and 2012-2013 showed that most of the DE courses offered were for college credit and were provided by the local community college and Virtual Virginia. Course enrollment reports for the school years encompassing 2009-2013 support this claim. These reports show that dual
enrollment courses offered make up a majority of DE courses taken by students at the
target school. Dual enrollment courses are provided by the local community college.
These reports also show that Advanced Placement courses (provided by Virtual Virginia)
make up the second most number of DE classes taken by students at the school. This
phenomenon is new to the past two school years. For the school years 2009-2011,
students took relatively the same number of dual enrollment and Advanced Placement
courses via the DE format.

Observations. The five on-site observations provided valuable insight as to
whether what had been perceived by participants and what had been listed in documents
was actually taking place in the implementation of DE at the target school. During the
observations, it was recorded that all students enrolled in the class studied were in fact in
classes for college credit. Five students were enrolled in two AP classes, and thirteen
students were enrolled in seven different dual enrollment courses. No students were
enrolled in classes provided by any other entity. The nine courses were all asynchronous.
It should be noted that a facilitator was assigned to the Achiever’s Lab where the students
took their DE classes, but I did not view her participation as enough to consider this a
hybrid format of DE. Other than a few comments suggesting improvements to DE at the
target school recorded during the observations, no measures of evaluation of this program
were noted.

Research Question #4: What suggestions do stakeholders have for improving DE at the
target school?

The one item of suggestion that was present in all three data sources in answering
Research Question #4 was better preparation for students and teachers. Interviewees such
as Mary openly suggested that better training for students and teachers would make marked improvements in the DE program at the target school. Several students commented similarly that more training prior to beginning their first DE course would have made for an easier experience. In the Education Technology Plan for 2010-2015, several proposals were made to increase the amount of training on the use of technology available to students and teachers. Also, during the five on-site observations, students commented that they felt they needed more preparation prior to beginning their first DE course. This was apparent also in watching some students struggle in navigating the course software and in figuring out how to turn in assignments.

Another suggestion, or rather a series of suggestions, that appeared in all three data sources was the improvement of technology available at the target school. Available technology was noted by several participants and took the form of finding high school level DE courses, having more computers and more space for DE classes, and increasing bandwidth for the target school so as to better meet the technological requirements of DE courses. Increased bandwidth for the school was also noted in the Educational Technology Plan 2010-2015. This document also called for the provision of a take-home Internet device for every student in the division. During the five on-site observations, the facilitator openly requested new equipment as well: a printer for student use and a scanner so that she could more easily submit student paper and pencil tests. Students during the observations suggested that the school put Microsoft Office software on each of the computers as opposed to the Office Libra that was currently in use. Students said that this would make submitting assignments easier as Microsoft Office is what their professors all use.
Other items worthy of mention, but not found in all data sources include the expansion of the DE program as a whole as noted by several participants during the interview phase of this study and more closely syncing the high school and college calendars to reduce confusion experienced by students who have are governed by both. The Education Technology Plan 2010-2015 supported the idea of expanding the DE program by suggesting that the division seek outside sources to provide high school level DE courses in addition to the college level classes currently offered. A quick look at the DE Course Enrollment Report for 2012-2013 in comparison to previous years showed that courses in Russian, Spanish, and economics and personal finance have been added as options for students.

The suggestion to more closely link the high school and college calendars was mentioned by one student participant during an interview and was commented on during Observation #5 by students and the class facilitator. Students enrolled in courses through the local community college were forced into somewhat of a hiatus during this observation because the college was on spring break. The facilitator also stated that in a couple of weeks when the target school was on their spring break, students needed to keep up with their assignments for the college. This was true whether or not the students had made plans to be out of town during the target school’s spring break. The facilitator also commented during an interview as well as during Observation #5 that the start dates and end dates for students taking courses through the local community college needed to be adjusted to meet those same target dates for the high school. She said that often students have a month left in the target school calendar after their college course has completed.
CHAPTER 5: CONCLUSION

This chapter includes a summary of the finding of research for this project. Also included are interpretations of these findings and their connection to past and current research on the topic of distance education. From the summaries and related interpretations, suggestions for future research in this field will be made. Study limitations and strengths will be discussed, and final conclusions will be presented.

Statement of the Problem

As noted in Chapter 1 of this document, the problem is that rural high schools face challenges particular to their situation that impact the implementation of distance education. Among these challenges are funding for distance education and the ability to hire enough teachers that meet the mandated requirement of being “highly qualified” (Hannum, 2009). Other challenges for rural secondary schools that wish to add distance education courses to their class offerings include the rigor of college level courses of which many now have access to and personnel not being properly trained to implement such a program (Matuga, 2009: Irvine et al., 2010).

Though there has been considerable research conducted on distance education as a whole, little research has dealt solely with distance education at the high school level. Furthermore, of the research that has included high schools, even less can be found that deals specifically with rural high schools. This study served as a means of describing the combined experiences of stakeholders at a rural Virginia high school with respect to their implementation of distance education.
Review of Methodology

This study was conducted using a phenomenological, case study approach. The main objective in this study was to investigate the collective experience had by stakeholders in distance education at the target school. As suggested by Creswell (2007), a phenomenological approach is best when one wishes to identify and explain the personal experiences held by individuals or groups involved in a particular endeavor. The experiences had by stakeholders at the target school with regards to distance education are the basis for this study.

To get to the root of the experiences had by the many stakeholders of distance education at the target school, the following four research questions were developed:

1. What are benefits of DE usage at the target school?
2. What barriers exist(ed) to the implementation of DE at the target school, and how did the target school overcome identified barriers?
3. What is the structure of DE at the target school (i.e., format, course providers, patterns of usage, and program evaluation measures)?
4. What suggestions do stakeholders have for improving DE at the target school?

Answers to the four research questions were derived from three data sources: semi-structured interviews with four groups of participants (decision makers, teachers/facilitators, students, and parents of students enrolled in DE courses), document analysis, and five on-site observations. For the interviews, two digital recording devices were used to collect audio data. Interviews were transcribed from these audio recordings as quickly as possible following the interview. As a member check, interview participants were asked to approve all transcriptions before the documents would be used for data
Numerous documents were collected that informed me on the budget of DE for the target school, DE course offerings, DE course enrollments, technology concerns and remedies, and school and division planned improvements. Data was from five onsite observations by way of placing myself in a DE classroom that represented the demographics associated with what constitutes the typical DE environment for students at the target school. Data from the observations was collected by means of a constant note taking method. Notes were transcribed as soon as possible after the observation was conducted.

Data analysis was conducted by employing open and axial coding methods for all transcribed data from interviews and observations and from a review of documents (Creswell, 2007). Codes generated through open coding were then collected by process of axial coding into themes. The themes developed from coded data have been presented in Chapter 4 of this document and will be summarized in a later section of Chapter 5.

**Summary of the Results**

In this section will be presented a summary of the results of data collected for each of the four research questions investigated for this study.

**Research Question #1. What are benefits of DE usage at the target school?**

Benefits afforded the target school and its students include college preparation, flexibility in scheduling, exposure to the outside world, and assistance from others involved in the DE program. College preparedness is the most overwhelming benefit and can be described in a number of ways.

According to interview participants, college preparedness as a benefit of DE at the target school is represented by the opportunity to earn college credit, by these credits
being paid for by the division, and by students developing personal traits that will make them more successful in college. The opportunity to earn college credits and have them paid for by the division was also supported by documents that were analyzed for this study. In the Program of Studies Guide for 2012-2013 is a statement that directly lists the benefits to families as college tuition savings by earning college credits while in high school. In the division annual budgets reviewed for the years 2009-2013, there were notations each year for $25,000 in expenditures for a partnership with the local community college. This money is earmarked to pay for dual enrollment courses in which students at the target school earn college and high school credits simultaneously for each course. In addition, during the five on-site observations, it was noted that all students in the classroom observed were enrolled in classes and, if successfully completed, would earn the student college credit.

The concept of DE increasing flexibility in scheduling for the school and students was recorded during interviews with multiple participant groups and again in several of the five on-site observations. Two students commented that DE allowed them to take a foreign language course that they could not fit into their schedule if they wanted an elective course offered at the school. One Decision Maker noted that DE allows for the school to schedule students with higher academic needs classes that could not be offered without access to DE courses. Two parents also noted that they appreciated the opportunity for their child to schedule a class that was not offered on site at the target school.

Flexibility for students in the classroom observed involved being able to complete their coursework over a period of time. This was evident when several students were
observed working on homework for the government and math classes they were taking in the traditional setting. Testing for these students seemed to be flexible as well in that students were given a range of dates to complete tests for their classes. Students also had the flexibility to leave the online classroom as necessary to take care of personal business or to attend to requirements for one of their traditional classes.

In addition to college preparedness and increased flexibility, DE provides the benefit of exposing rural students at the target school to the outside world. Several adult participants noted this as an advantage of DE. One decision maker specifically stated that students enrolled in DE courses have the opportunity to become more globally and culturally competent. One parent recognized that his daughter had grown through her DE experience in that she was more excepting and tolerant of new and different ideas. This parent directly attributed this growth in his daughter to her being in a virtual class with students from different place having differing ideas. Working with other students, or peer assistance, is also a noted benefit of DE at the target school.

During interview sessions, decision makers, students and teachers/facilitators all commented that students enrolled in DE classes seemed to help each other navigate their way through their courses. Mary stated that she saw students assisting others logging on to courses. Alice stated that her students regularly help each other with maneuvering through courses and also with instructor expectations. These two items were witnessed as well in three of the five on-site observations conducted. Also in these observations was seen the benefit of having a facilitator present to assist students with their DE classes. The facilitator for the class observed regularly emailed professors for assignment and testing clarification. She also informed students on a daily basis of tests and assignments
that were to be completed. Furthermore, the facilitator occasionally took on the role of an instructional assistant as noted when she worked with Donna to edit a paper that the student needed to turn in.

**Research Question #2:** *What barriers exist(ed) to the implementation of DE at the target school, and how did the target school overcome identified barriers?*

Major barriers at the target school with respect to the implementation of distance education included the following: issues with technology, student and teacher preparation for DE courses, funding, managing high school and college calendars simultaneously, and distractions in the DE classroom. Issues with technology and the need for better student and teacher preparation for DE classes were found as barriers in all three data sources. Funding, managing high school and college calendars, and distractions in the DE classroom were each present in two of the three data sources.

During the interview process of this study, it was apparent that many of the participants found technology to be a major problem for the target school and its implementation of DE. Some, like Harold, saw the lack of effectively using the technology that is currently present in the target school as a major barrier while others, like Alice, stated that there was not enough equipment (computers, printers, scanners) to properly implement DE courses. Students during the interviews voiced very few issues with the amount of technology dedicated to DE courses at the target school but did mention that communication with their professors sometimes is a problem that they encounter. In each of the four participant groups, it was noted that much of the county the target school serves does not have cost effective access to high speed Internet. This was stated as problem by Tina when she commented that sometimes her son had to be online
at 6:00 pm to participate in an online class activity, and they had to find somewhere (the school, the local library, another home) for him to log on because they were still using a dial-up connection and did not have the speed to upload and download necessary assignments for the course.

During document analysis, data was discovered in the Educational Technology Plan 2010-2015 that noted the following areas for improvement: increased technological equipment for students, finding more high school level DE courses, and increasing the bandwidth accessible to the target school. A major goal of the division is to put a take-home Internet device in the hands of every student. In fact, the division has already given an Internet device to all students in grades 4-7 and has plans to add 8th grade to this list by the end of the 2012-2013 school year.

During the five observations, technology did present limited barriers. For instance, students noted that they currently have Office Libra loaded on the computers in the classroom but have to convert many of their documents to Microsoft Word for submission to their online instructors. Also observed was the fact that students that needed a document printed had to first email the document to the facilitator in the classroom and have her print it on the one printer in the classroom. The facilitator also lacked the technology (i.e., a scanner) to send instructors paper and pencil tests that had been completed by students. She had to send this either by fax or by US mail. Both of these options required her to use her lunch time to complete the task as she has no planning block. During Observation #1, the facilitator also noted she no longer had real problems with assisting students in navigating their courses but it was a self-taught skill
over the past seven years as she had no formal training to prepare her to facilitate the DE courses she was assigned.

Student and teacher/facilitator preparation for DE courses was another barrier for the target school in its implementation of DE that was uncovered in all three data sources. During the interviews, several students and decision makers stated this as a problem. No student commented that they had been prepared in any formal way to take DE courses at the target school. Only one teacher, Brett, said he had been required to take an eight week online course to prepare him to teach a course at the target school that had an online component. Parents were generally unaware of any preparation that their child received prior to taking a DE class at the school. In the Educational Technology Plan 2010-2015, a stated goal was the need for better and more technological training for students and teachers. No other documents noted training or preparation of students and teachers/facilitators in any form.

During the five on-site observations, it was recorded that a couple of students did seem to have trouble navigating their DE courses. One student, Angela, did not seem to know after submitting a test whether the icon that appeared on her screen meant that she had submitted the item or that it had been graded. She assumed at first that it had been graded but later discovered she was incorrect. Several students had mentioned during the interviews that not knowing how to navigate their courses was a problem for their first DE class but that others in the room with more DE experience had assisted them. This was true with Angela as others helped her understand how to submit assignments and what the different icons upon submission meant.
Of the barriers found in two of three data sources, a lack of funding could be the answer as to why there appears to be so little training for students and teachers for DE course participation. Decision makers and teacher/facilitators both commented that funding could be a barrier for implementation of DE at the target school. Mary said that with school budgets the way they are, finding monies to support DE the way the division would like may be difficult at times. Paula said that she had to purchase software for her students because there was no money budgeted for the math assistance program that she discovered during the school year. With DMs having noted funding for DE being a potential problem, the discovery of a plan in the Educational Technology Plan 2010-2015 to give every student an Internet ready device and to pay for increased bandwidth may be tangible at best. Funding for technological training for students and teachers as proposed in the plan may also be limited.

Other barriers that were found in two of three data sources included students being able to navigate high school and college calendars and distractions in the DE classroom. Stated in interviews by students, one decision maker, and one teacher/facilitator was the fact that the high school begins its semesters and has its breaks at different times than the post secondary institutions that provide many of the DE courses offered at the target school. This was witnessed during Observation #3 when the facilitator in the classroom had to explain to students that when the target school was on spring break, the students were still required to keep up with assignments due to the local community college. This declaration by the facilitator was one of many items that led to distractions in the Achiever’s Lab, where the bulk of the DE courses at the target school are taken. Other distractions recorded during the five on-site observations included
students talking on a regular basis, students watching videos not related to course work, and students playing computer games during class. These distractions were noted during the interview phase of the study by two students and by two teacher/facilitators as well.

Solutions presented for these barriers listed in this section would seem to make the process of DE implementation at the target school at the very least effective. For instance, the proposal to increase the number of Internet devices available to students could ensure that students have access to equipment necessary for the DE course work. In some instances noted by the facilitator in the Achiever’s Lab, students were sent to other classrooms and other computer labs to take their DE classes. This was done in some cases to have access to computers and in other situations so that students could remove themselves from distractions in the DE classroom. No solution was presented for the barrier of funding for DE other than Jim noting that the division needed to look more into how to use Massive Open Online Courses (MOOCs) to provide DE courses for credit for students and for professional development for teachers. Many of the MOOCs are free according to Jim and could provide a cost effective means for supporting DE at the target school. He also noted that colleges such as the Massachusetts Institute of Technology offer free courses that can be taken online but not for college credit. Finding a way to convert the completion of these courses to high school or professional development credit is the next hurdle, according to Jim.

A solution to the lack of preparation for teachers and students participating in DE at the target school was witnessed in the classroom with students assisting each other in navigating courses. Teachers that commented on not having been prepared did also note that they taught themselves how to manage the DE courses they were responsible for.
Increased student and teacher training in technological skills were proposed by the division, and with this increased training, the possibility that students and teachers will be better equipped to participate in DE also increases.

Solutions to students managing both the high school and college calendars of the schools in which they were enrolled were observed in the DE classroom during each of the five on-site observations. The facilitator in this classroom opened each day by announcing which courses had tests or quizzes that day or week. She also posted on the chalkboard a listing of midterm exam dates and corresponding courses for the duration of the observations. Furthermore, on two occasions, the facilitator informed the students of their responsibilities when the post secondary institution they were enrolled in was on spring break as well as what they needed to do when the target school was on spring break. In each instance, the facilitator proved to be a valuable asset to students in managing the two different school calendars.

**Research Question #3:** What is the structure of DE at the target school (i.e., format, course providers, patterns of usage, and program evaluation measures)?

Distance education as represented at the target school is set up through a series of asynchronous courses that are delivered to the school primarily from post secondary institutions and Virtual Virginia (Virginia Department of Education). More DE classes are taken by students as part of a partnership with the local community college as dual enrollment courses than in any other format. The target school does make use of components of DE to supplement math remediation as well as for its gifted Governor’s School program, but these make up a smaller proportion of courses taken as well as students enrolled. Most students that participated in this study were taking at least their
second DE course, with one student taking her fifth. Only one teacher/facilitator stated that this year was the first time he had instructed/facilitated a DE course while others commented on being involved in multiple courses either as a DE instructor or as a DE facilitator. There were no formal measures established to evaluate the DE program at the target school with the exception of a handful of proposed reports from the technology department at the target school with respect to DE enrollment. Informal measures such as a review of student grades and standardized test scores were noted during the interview process by several decision makers.

Of the DE courses offered by the target school for the 2012-2013 school year, twenty classes, or over 83% of all DE course offerings, were offered only in the asynchronous format. One course, Economics and Personal Finance, was offered both in asynchronous and hybrid formats. Two courses, BRVGS (gifted program) math and a remedial geometry class, were offered in a hybrid only format. One other course, Dual Enrollment Biology, did make use of the local community college’s online library, but the usage of the library was the extent of any distance education component for the class. When asked which format for DE they liked best, most participants chose hybrid. In fact, four out of the six decision makers interviewed chose the hybrid format, yet a vast majority of course offerings were only asynchronous. Two students also commented when interviewed that they preferred a class that combined a distance education component with a live teacher present who was able to explain concepts they found difficult to understand.

During interviews, decision makers asserted that they believed most of the DE courses taken by students at the target school were provided by either the local
community college or by Virtual Virginia, which is an arm of the Virginia Department of Education. This proved to be true (see Table 4). Though more DE enrollments for the current school year were provided by post secondary institutions, in the three preceding years studied, there was less of a gap between course enrollments for students taking classes through post secondary institutions than those taking classes through Virtual Virginia (see Tables 1-3).

The class observed for this study was representative of the typical implementation of DE at the target school. This class was comprised of 18 students taking a total of nine different DE courses for the second semester of the 2012-2013 school year. Seven of the classes students were taking were provided by the local community college, and two were provided by Virtual Virginia. All classes were asynchronous. Thirteen students were taking dual enrollment classes offered through the local community college and five students were enrolled in Advanced Placement classes provided by Virtual Virginia. No other provider of DE classes was represented in this group.

**Research Question #4: What suggestions do stakeholders have for improving DE at the target school?**

Suggestions for improvement of DE at the target school were found in all three data sources. Interview participants suggested that the DE program at the school should expand to offer more college and high school level courses. Participants also offered that more and better training for students and teacher/facilitators prior to participating in DE courses would enhance the experience for each of these groups. Some participants even suggested that a change in the way of thinking for the school would be an improvement. Jim stated that the school, and public education in general, must step into the 21st century
and alter its views of teaching and learning to match the current and future generations. Others, like Karen, said that DE could be used to expand course offering by teaching classes within a class. According to Karen, certain courses such as Accounting 1, 2, and 3 could all be taught by one instructor at the same time in the same classroom using DE. Students could potentially progress through several levels of a course in one term as opposed to remaining stationary at one level for a semester.

Only in one document analyzed for this study, the Educational Technology Plan 2010-2015, were suggestions found for the improvement of DE at the target school. The plan proposed that by 2015, all students will be given a take-home, Internet ready device. Presumably, this would enable students and teachers to incorporate more distance education components into teaching and learning. Another suggestion for improvement of DE found in the Educational Technology Plan 2010-2015 was the search for more high school level DE classes that could be offered to students. Within the plan were also suggestions to increase the amount of bandwidth accessible to the target school as well as more training for students and teachers with regards to using technology. Distance education was proposed as one means of providing this additional training.

Students observed in the classroom setting also suggested that more training prior to taking their first DE class would have been helpful. One student, Angela, was observed struggling to understand how to submit assignments for her course as well as interpreting the meaning of icons found in her course software relating to assignment submissions. Students also suggested that it would be easier to submit their assignments if they had Microsoft Word like their professors as opposed to the Office Libra software that is currently loaded on their computers. Other suggestions relating to technology in the DE
classroom included the addition of a printer connected to student computers and a scanner available to the facilitator for the purpose of submitting paper and pencil tests that some students are required to take. Finally, a suggestion made by the facilitator of the class observed was to make an attempt to better link the calendars of the target school with those of the colleges that provide DE courses for students. This would provide a better experience for students, according to the facilitator.

**Interpretation of Findings**

It is apparent from this study that the primary focus for using DE at the target school is for student preparation for college. This preparation can be in the form of earning college credit, developing college readiness skills, or simply experiencing the expectations students will have placed upon them when they enter college. The evidence supports this statement in that a primary benefit of DE as stated by all four interview groups was the ability for students at the target school to prepare for college. Furthermore, documents analyzed stated this as a benefit for students, and the class observed for this study consisted of only students taking classes for potential college credit.

Though college credit is the major benefit of DE at the target school, it is also apparent from interview data collected that the future of DE at the target school is one of expansion. This claim, however, is not supported in documents analyzed for this study. It comes completely from data given by participants during interviews. Suggestions made by many participants included expanding the DE program to include more college level courses, searching for high school level courses, and finding ways through DE to incorporate multiple levels of the same subject in one classroom. The suggestion to
search for more high school level DE courses was also found in the Educational Technology Plan 2010-2015. Additionally, Jim stated that the school and the division are searching for ways to make use of the growing number of courses provided free online. The issue, according to Jim, is not being able to use these courses but rather, finding ways that students and teachers can earn credits toward graduation and professional development when taking free DE classes.

The target school faces some of the same issues as other rural schools with respect to implementing distance education. As outlined earlier in this document, funding and technology are potential barriers for rural schools to overcome if they wish to make use of DE (Bral, 2007; Irvin et al., 2010). Irvin et al. also found that technology used to support DE in rural schools was a barrier. The target school in this study experiences problems with technology with respect to implementing DE. Some of these problems include scheduling more students in the Achiever’s Lab than the number of available computers in that classroom, having enough bandwidth to support DE courses and state mandated online standardized testing, and having the proper hardware and software available to students and teachers to effectively take part in DE. To move forward with DE, to expand DE at the target school, these and other barriers will need to be addressed.

**Guidelines for DE Implementation**

The following seven items are suggestions, or guidelines, that should ease the transition for rural secondary schools as they increase the DE courses they offer. These have been developed through literary research conducted for this study as well as through data collected during the research project itself. It is my intent that the seven guidelines to implementing DE will be of value to schools similarly situated as the target school.
Guideline #1: Planning

For this study, the School Improvement Plan and the Division Improvement Plan for the target school were reviewed. The review covered the school years from the fall of 2009 to the spring of 2013. In neither plan was there a direct mention of DE. In the School Improvement Plan for 2011-2012, there was the inclusion of a creating time and space for students to enroll and participate in an online SAT prep program called EDGE. Otherwise, nothing was mentioned of improving DE for either the school or the division.

According to Pape and Wicks (2009), a major component of a successful online program is for that program to have a mission statement. The mission statement provides guidance for the direction of the online program, is reviewed regularly, is made available to the public, and outlines the roles played by all stakeholders (Pape & Wicks). In addition to a mission statement, Pape and Wicks noted the need for three types of planning: strategic, long range, and operational. This planning should lay out a 3-5 year program of improvement and should be aligned with the school or division’s strategic goals (Pape & Wicks).

To create a DE plan for a school, all stakeholders in that school should meet to determine the purpose and direction of the DE program at the school. Once a purpose and a direction have been determined, this plan should be publicized. For schools in Virginia, the most obvious place to include a plan for DE would be in each school’s improvement plan and in the division’s improvement plan. These plans are mandated by the Commonwealth of Virginia and would be accessible to all who wish to see. Inclusion of a DE plan in the school improvement plan as well as the division improvement plan may
only be in outline form, and it may be necessary to publish the complete plan on the school and division websites.

**Guideline #2: Budget**

For the purpose of transparency, DE should be listed in the budget proposal for each school division. For this study, annual budgets for the division for the four school years 2009-2013 were reviewed. In each of these budgets, a notation was made that showed a $25,000 planned expenditure for dual enrollment courses for the target school. The school offers some dual enrollment courses virtually but also offers some in a more traditional classroom setting. No assumption can be made that this money is directed toward DE. Additionally, each of the four budgets reviewed showed an expenditure of $21,000 for the Achiever’s Lab. The Achiever’s Lab is a dedicated computer lab for students to take online courses throughout the day. An assumption can be made, if one knows the purpose of the Achiever’s Lab, that the proposed expenditure for the Achiever’s Lab is a direct contribution to the DE program at the target school. If one is not aware of the purpose of the Achiever’s Lab, there is no reason to believe that they would assume this money is going to DE at the school. In both cases, a line item in the budget that shows money directed toward distance education specifically would allow the school community as a whole to better understand the costs of DE and possibly the savings created by implementing this format of instruction.

**Guideline #3: Accessible to Parents**

Two parents interviewed for this study noted that they had a real challenge keeping up with their children’s performance in DE classes. Fred explained that he was an involved parent and that it was frustrating for him to not be able to access his child’
grade for an online class as he was accustomed to doing in her more traditional courses. Tina echoed these sentiments but accepted that her son was in a college level course and expected grading policies to be a little different. It was discovered through an interview with Anne that the local community college observes the same federal regulations with respect to giving out student information for their dual enrollment high school students as they do for their students only attending the community college. This policy only allows persons listed on the student’s information release form to be given access to information such as grades and assignments for classes. The remedy in this case is to proactively inform parents of this situation and to give appropriate details of how to proceed to parents that wish to access their children’s grades. This can be done simply by the student filling out an information release form.

**Guideline #4: Appropriate Technology.**

Though the division notes having a 1.2:1 student to computer ratio, a lack of appropriate technology was a consistent theme among all four participant groups (A Snapshot of Nelson County Public Schools: 2012-2013, 2012). Decision makers felt the school was not using the technology available appropriately. Teachers/facilitators commented that they needed additional software to make effective use of the technology to which they had access. Students noted that for some of the DE courses they had taken, there were more students assigned to the Achiever’s Lab than there were computers. This sentiment had been noted by Alice as well. One student also commented that he was unable to take computer programming courses online because the school did not have the software necessary to run the course. Parents’ problems with technology focused more on the lack of access to high speed Internet at home. The county is a rural one and is limited
in its access to high speed Internet other than for those who wish to pay for direct link satellite support, as noted by Tina. Decision makers as well as students also stated that students and teachers need to be better trained in how to use the software for the various courses offered via the DE format.

With an increasing demand for DE, each school division should evaluate the DE program they currently have in place with respect to technology. Items of interest should include availability of computers, appropriate software to support courses, awareness of potential scheduling conflicts, at-home technological support for students, and sufficiency of the amount of bandwidth available to support DE courses (especially when the school is conducting online standardized testing). Though many of these problems are easily resolved if the resources are available, a review of such items may prevent problems with DE implementation prior to them arising.

Guideline #5: Evaluate

No formal measure of evaluation was present at the target school to determine the effectiveness of DE. Decision makers commented both that the program was evaluated informally through a review of grades and anecdotal evidence provided by participants, but no formal process has been created to date with respect to evaluating DE at the target school. Mary suggested a more formal approach to evaluating DE at the school would be helpful.

According to Pape and Wicks (2009), evaluation of a DE is essential to its success. DE programs should be evaluated through formal measurable means both internally and externally. Both forms of evaluation should use specific, measurable metrics and should be conducted on a regular basis; internal evaluations on an ongoing
basis while external evaluations can be more periodic. Results of both the internal and external evaluations should be shared with all stakeholders (Pape & Wicks).

**Guideline #6: Promotion**

An important piece in building a successful DE program is to inform stakeholders (and others) of the DE options available. The target school in this study has begun to do this. The Program of Studies Guide for 2011-2012 listed all of the courses available to students, but there was no indication in this document of which courses were offered via an online format. For the 2012-2013 version of the guide, a notation reading “online” was placed beside the course name and number for every class that was offered through distance education. The Achiever’s Lab, a computer lab dedicated solely to students taking DE courses, has been touted in the division newsletter more than once. The guidance department, over the past year, reorganized how it makes parents and students aware of the requirements and responsibilities that go along with taking DE courses. In essence, the target school is trying to get the word out about DE options available at the school.

**Guideline #7: Training**

A lack of preparation/training for students and teachers taking or teaching their first online course was listed as a major barrier to DE in an Irvin, Hannum, de la Varre, and Farmer study published in 2009. As noted by each participant group with the exception of the parents, a lack of preparation for DE courses was seen as a real challenge for DE at the target school. Students commented that they were lost when trying to log on to their first course and even more unaware of how to navigate the course software to submit assignments. Students would benefit from training on how to log into
their courses, submit assignments, and navigate the site to access available resources. Teachers/facilitators would benefit from the same training so as to assist their students when necessary but also may benefit from training in communicating with instructors and the parents of students in their classes.

**Relationship to Previous Research**

One key benefit of implementing DE on the secondary level as found in research is the ability of a school to increase the number and variety of courses it offers students (Picciano & Seaman, 2007). Over the past two years, the total number of DE courses offered at the target school has nearly doubled, from 12 in 2010-2011 to 21 in 2012-2013. This is a direct result of the nearly doubling of DE course offerings available to students. While the total number of Advanced Placement courses remained the same for the two year period (5), the number of dual enrollment DE courses taken by students has increased from 5 in 2010-2011 to 21 in 2012-2013. The increase in ability to include more AP courses was seen as a direct benefit of DE by Hannum et al. (2009). Zandberg et al. (2008) noted that secondary students enrolled in dual enrollment courses were more likely to attend and graduate from college. More students at the target school take dual enrollment courses today than any other type of DE course. In addition, participants in all four interview groups commented that preparation for college was a major benefit of DE at the target school.

Watson and Gemin (2008) found that DE can and is being used to assist secondary students in the recovery of credits lost at some point during their high school career. Some schools are using DE to support “at risk” students to move toward graduation (Cavannaugh et al., 2009). At the target school, there was one small group of
students assigned to a remedial math program utilized the Khan Academy and its many resources.

As beneficial as DE may be at rural secondary schools and at the target school in particular, maintaining a DE program comes with its challenges. According to Bral (2007) and Irvin et al. (2010), a major barrier to the implementation of DE for rural schools is funding. Funding was mentioned as a potential barrier at the target school by one decision maker and by two teacher/facilitators. Matuga (2009) found that professors of high school students taking classes for college credit may not completely understand the needs of secondary students. This was observed in many of the five on-site observations in the form of frustration over a lack of communication with professors and with inconsistent feedback from professors for assignments turned in. Additionally, technology was noted in research as a potential barrier for rural secondary schools in particular (Irvin et al., 2010). According to Irvin et al., technology was a potential issue in that students needed to possess a higher technological skill set when participating in DE courses. Teachers also required more training in delivering courses via the DE format (Irvin et al.).

Technology was in fact recorded as the major barrier to DE for the target school in this study. However, the technological issues faced by this school are somewhat different than those proposed in research. Participants in each of the four interview groups stated technology as a barrier but for various reasons. A lack of equipment, improper software, limited bandwidth, and limited space for DE were noted as major technological problems for the target school. Training for students and teachers taking part in DE courses was also noted and represents the one real link of the target school to
barriers found in current research. Better training of students and teachers/facilitators participating in DE at the target school may lead to smoother implementation of DE courses.

Implementation of DE at the target school is associated mostly with the use of asynchronous courses offered through post-secondary institutions for college credit. More students take dual enrollment courses through the local community college than any other source. Moreover, a vast majority of the DE courses offered at the target school are for college credit. In addition to the dual enrollment courses, students are able to take a wide variety of Advanced Placement classes. These two together make up over 90% of the DE student enrollments for the target school during the current school year.

As noted through document analysis and from the five on-site observations, all of the above mentioned AP and dual enrollment DE courses are offered in an asynchronous format only. The target school does have one hybrid economics and personal finance course and two dual enrollment biology courses that are taught by instructors on site. The economics class makes use of DE type modules created by the instructor, and the biology courses have a distance education component in that they use the local community college’s online library to do research. According to Jim, there are plans to offer more high school credit courses (possibly in hybrid format) in the future, but as of now, these are only in the planning stages.

Also in the planning stages for the DE program is a more formal method by which the DE program and DE courses are evaluated. Research shows that effectively managing teachers, regularly evaluating DE programs, and providing support for students are process that lead to successful DE implementation (Watson & Gemin, 2009). As noted
earlier, no decision maker interviewed was aware of any formal measure of evaluation for DE at the target school. Informal measures such as a review of grades in DE courses and suggestions from participants are used to make adjustments in the program, but again, there is no formal process in place to evaluate DE at the target school.

**Theoretical Framework Findings**

Research into theory relating to DE suggests that communication in the world of distance education is a primary concern. Moore’s Transactional Distance Theory (1996) and Holmberg’s Theory (2003) both outlined the ways in which communication can affect DE. In Moore’s theory, dialogue, structure, and student autonomy are linked. They are linked, for instance, in that the more structure that is present in a DE class, the less student autonomy there is. Moore also suggested that the more structure and dialogue that exists, the less transactional distance is present. Holmberg (2003) stated that individualism, approaches to learning, and relationships in the DE world are all reflective of levels of communication present. At the target school, there did appear to be a sufficient level of structure and dialogue for students to feel supported. Some students commented that they wished they had better communication with their professors, but most did not note this as a major barrier. All of the DE courses observed were asynchronous and highly structured. All classes observed were provided by colleges, universities, and the Virginia Department of Education’s Virtual Virginia program.

In DE courses observed, as well as during the interview process, Students, teacher/facilitators, parents, and decision makers each seemed to accept DE as equal to face to face learning in anticipated results. No questions were directly asked of any participant with respect to the equality of education between online learning and more
traditional, face to face instruction. This tends to support both the No Significant Difference Phenomenon and the Equivalency Theory espoused by Russell (1999) and Simonson (1999) respectively. Both researchers suggested that there was not enough difference between the two methods of teaching and learning to make a determination that one is better than the other. Russell went as far as to claim that based on cases dating back to the 1920s, there was no significant difference in outcomes between traditional and distance education and that schools should act responsibly and choose the least expensive alternative of the two when permitted. Simonson (1999) stated that similar results could be expected from both methods assuming that similar activities and resources were used in the instruction of the distance traditional classes. Simonson’s theory was tested by Lapsly (2008) and by Weber and Lennon (2007) and in both studies results supported Simonson’s theory. Distance education may have been at the target school long enough now to expect equal results, and this may explain why only one decision maker even questioned whether DE provided the same level of rigor and learning for students.

**Limitations of the Study**

This study was limited in that its focus was on a single target school. Transferability of results may be limited to other schools similarly situated to the school that was studied. The target school is a small (580 students) rural high school in central Virginia. This school has made considerable use of DE in the past and may or may not represent other rural schools in the Commonwealth of Virginia.

This study was also limited by the number of participants who took part in the study. My intent was to interview all decision makers and teacher/ facilitators that dealt
directly with DE at the target school as well as ten students and ten parents of students enrolled in DE courses at the target school for the current school year. In total, seven decision makers and six teacher/facilitators were interviewed. These comprised the total number of potential participants in these two groups. However, only six students and six parents of students enrolled in DE courses agreed to take part in the study. Additional input from more students and parents may have increased the richness of data collected.

The design of this study being qualitative was also a limitation in that more quantitative data would answer some questions that were generated. For instance, grades could be compared between students that took DE courses at the target school with those of students who took similar classes delivered in a more traditional format. Statistical significance of differences in grades (if any) could have been found by using more quantitative measures.

Finally, the group of students observed was limited to one class of students enrolled in various DE courses. These students were all placed in the Achiever’s Lab at the target school, a computer lab dedicated to DE courses which has a facilitator present throughout the day. I made the decision to limit observational data collection to this group because they were representative of the vast majority of DE at the target school. Students in this group were each enrolled in asynchronous classes for which they could earn credits for college. I was able to visit other classes that participated to some level in DE but limited observational data to the one group previously mentioned.

**Suggestions for Future Research**

As this study was limited to one small, rural high school in central Virginia, it may be beneficial to replicate this research in similar schools. By repeating this study
with schools similar to the target school, results could be compared, increasing (or decreasing) the validity of the findings of this study. It is assumed that not all rural secondary schools participate in DE at the same level, and a comparative study may be valuable in finding out why this is so.

This study was conducted using qualitative research measures. Future research could include more statistical inquiry into the numbers of students participating in DE at rural high schools in Virginia. Quantitative measures could also be used to determine the number of college credits earned by students in DE courses while they were still in high school and the impact that DE participation may have on post-secondary enrollment. Furthermore, as college preparedness was a key benefit of DE found in this study, more quantitative data could be collected to determine if students who enroll in post-secondary institutions upon graduating from high school have benefitted in some way from the secondary DE experience.

From this study came the call for expansion of DE at the target school. Participants wanted to see more overall DE courses offered at the target school in general as well as specifically more high school level DE courses available to students. Future research in this area should be in determining which types of DE courses are more suitable for a larger high school population. Measures used to evaluate students’ readiness for DE participation could be a topic of future research as well.

As budgets for public schools are becoming increasingly limited, future research into the viability of free, open courses should be conducted. Many reputable colleges and universities offer free college level courses to the masses, albeit without credit. Are these courses suitable for high school students? What opinions do school leaders have of trying
to use these free resources as a means of supporting student learning with limited costs?
Future research can be used to answer these questions as well.

**Strengths of the Study**

The greatest strength of this study was the richness of the interview data collected. All persons named as decision makers who were asked to participate in the study were interviewed. This group included the division superintendent, one division assistant superintendent, the division technology director, the division director of career and technical education, the target school principal, and the guidance director of the target school. The group data were informative as to decisions that had been made in the past regarding DE as well as the direction that DE at the target school was likely to take. Additionally, all teachers/facilitators that have been involved in DE at the target school participated. Having all teachers/facilitators contribute to this make the results from this group able to be considered substantial and complete.

The methods used to collect and analyze interview data for this study can be considered strengths as well. All interviews were recorded using two audio recording devices, and notes were taken during the interviews as well. In addition, following each interview, an Interview Reflection Form was completed. I transcribed all interview data myself. This was a tedious process but was immensely valuable, as doing so gave me a chance to interact with the data on a deeper level than if I had contracted others to transcribe the audio files.

A similar process was used with the five on-site observations that were conducted. Although no audio recording was done during the observations, I did take descriptive and reflective notes and transcribed these myself. An observation reflection
form was also completed, which again allowed the research to interact more deeply with the data collected. The observations proved to be a strength of the study in that I was able to see many of the benefits and challenges in person that had been commented on during the interview phase of the project.

**Final Thoughts**

As noted earlier in this document, the Commonwealth of Virginia has mandated that all students entering ninth grade for the 2013-2014 school year and beyond will be required to have a distance education experience prior to graduating from high school. This requirement places an increased importance on secondary schools to understand how to better meet the needs of their students through DE. No longer is DE a luxury or something that schools can do if they wish. From this point forward, secondary schools, even rural secondary schools, will be responsible for exposing their students to methods of learning that extend beyond the brick and mortar classroom.

With this new direction come many questions. What types of DE classes are suitable to which particular students? Will schools accept this new direction willingly? Are rural secondary schools equipped with the infrastructure and appropriate procedures to effectively provide a proper DE experience for their students? Can free courses offered online (i.e. MOOCs) be somehow used for students to earn high school credit? Finally, will there come a day when teachers are no longer needed in the classroom? One teacher/facilitator interviewed for this study posed this very question. These are but a few of potential questions generated as rural secondary schools move forward with DE. Answers to these questions will shape the use of DE in rural high schools for the foreseeable future.
The target school in this study appears to have a head start on making the shift to greater inclusion of DE as a part of its overall curriculum. Over the past two years, DE course offerings and student enrollments have nearly doubled. This trend will continue with the new requirement for all students in Virginia to have a DE experience before they graduate. Students today at the target school primarily participate in DE as a means of earning college credit while they are in high school. One must wonder if the future of DE at the target school will include the opportunity to earn high school diploma through a complete DE experience. The opportunity currently exists for students at the target school to use private vendors to earn a high school diploma in this manner, but will the target school, will public high schools in Virginia, make DE a viable free alternative to completing high school?

In closing, it is the vision of this researcher that the knowledge gained throughout the process of this study will be used to enhance distance education at the target school. I am in a position to promote the expansion and effective implementation of a solid DE program at the target school. Prior to expanding, the DE program needs a formal evaluation using internal and external measures to determine its strengths and weaknesses. Though I have my own opinions in these areas, a more formal approach would serve to gain input from others and add to the potential that real, effective change may take place. Furthermore, a formal evaluation of the DE program at the target school will assist in determining where expansion can or should begin.

Once a formal evaluation has been conducted, it will be necessary to promote the program to all stakeholders. Parents will need to be informed of the academic and financial benefits of their children taking DE courses at the target school. Students will
need to be told of the potential for academic growth and college preparation that DE can provide. Decision makers will, of course, will need to be convinced of the financial savings as well as be assured that the movement towards a greater use of DE will produce better achievement than the current, more traditional methods. Teachers and facilitators, particularly those who have developed a method of instruction that they rely on for student success, will need to be assured that any change in their current protocol will lead to even greater student success.

According to Cavanaugh (2009), students in blended or online only courses perform academically at the same pace as those in the more traditional classroom setting. Informing teachers of this fact may help bring more teachers on board with a shift toward the incorporation of DE components in their traditional classrooms. Flexibility in teacher and student scheduling as well as more time allowed for individualized instruction through the use of DE or DE components too can be appealing to the traditional teacher, said Cavanaugh. Ultimately, any real shift in methodology used by classroom teachers would come after a shift in vision for the school that incorporates DE as a means of meeting students 21st century skill needs (Bottoms & Schmidt-Davis, 2010). According to Bottoms and Schmidt-Davis, the role of the principal in making this move to a greater use of DE for the purpose of school improvement is to involve teachers in aligning the vision of the school to meet that of the district and state. They also commented that district and state agencies must then establish this vision as a guideline for the local school. In essence, I hope to effect the most change at the target school establishing a vision of incorporating DE as another tool for student achievement.
This vision will take time to implement. Change takes time. Change that is effective must be thought out and planned with the needs of all stakeholders in mind. It is my intent to be part of, if not take the lead, in moving the target school towards a more effective use of distance education.
References


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Appendix A: Informed consent form for parents, decision makers, and teachers/facilitators of DE

CONSENT FORM
Distance Education Effectiveness
The Effectiveness of Distance Education at a Small Rural High School: A Phenomenological Study
Roger D. Dunnick
Liberty University
School of Education

You are invited to be in a research study of distance education (DE) at Nelson County High School. You were selected as a possible participant because you either are a decision maker involved with the DE process at the school or you have taught, taken, or have a child has taken a DE course at NCHS. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Roger D. Dunnick, School of Education, Liberty University

Background Information

The purpose of this study is to develop an understanding of why DE has been used to supplement the curriculum at NCHS. This understanding is sought from all stakeholders to include decision makers, teachers/facilitators, students, and parents. In addition, it is the aim of this study to uncover how stakeholders believe DE can be improved at NCHS. A final aim of this study is to generate a guideline for schools similarly situated to NCHS to follow in implementing DE.

Procedures:

If you agree to be in this study, we would ask you to do the following things:

1. Schedule an interview time and location. Interviews should last between 30 minutes and 1 hour. It may be necessary to schedule a shorter follow up interview as well.
2. Review transcript data (provided by Mr. Dunnick) of the interview(s) conducted for accuracy.

Risks and Benefits of being in the Study

Though there are risks associated with participating in this study, the risks are minimal and are associated with accidental identification of participants. Every effort has been made to ensure that no participant will be identified by name in either the research or writing phases of this project.
The benefits to participation are: There are no monetary benefits to participation in this study. It is the intent of this study however, to provide essential information to be used in improving DE at this school and others that are similar to it.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records.

All persons interviewed or observed for this study will be given an identification code. At no point will the person’s name be necessary in the research nor will names be used in the reporting of research. Code names given for the purposes of reporting will be similar to the following: Decision Maker 1, Student 3, Parent 2, Teacher 4 and so on.

Furthermore, all interview and observational data will be recorded via digital audio recorders.

The files created for this project will be saved on 16GB flash drive and a 56 GB external hard drive. Both of these storage devices, as well as the recording devices themselves, will be stored in a locked file cabinet belonging to the principal researcher. All transcripts of the recorded data (both interview and observational) will be kept electronically in the same manner as the digital audio files. Printed copies of the transcripts will be kept in the same locked file cabinet. Printed copies of documents that may contain names of persons involved in the study will be stored securely as well. Upon completion of the mandatory three year holding period for data collected in this study, all electronic records will be deleted from storage and all printed data will be shredded.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the Liberty University or with Nelson County High School. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher that is conducting this study is: Roger D. Dunnick. You may ask any questions you have now. If you have questions later, you are encouraged to contact them at Nelson County High School, 434-263-8317, rdunnick@nelson.k12.va.us. You
may also direct any questions to the researcher’s supervisor: Dr. Judy Shoemaker, Liberty University School of Education, jshoemaker@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Institutional Review Board, Dr. Fernando Garzon, Chair, 1971 University Blvd, Suite 1582, Lynchburg, VA 24502 or email at fgarzon@liberty.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature:_________________________________________ Date: __________________________

Signature of parent or guardian:_________________________ Date: __________________________
(If minors are involved)

Signature of Investigator:______________________________ Date: __________________________
Appendix A: Informed Consent form for Students

CONSENT FORM
Distance Education Effectiveness
The Effectiveness of Distance Education at a Small Rural High School: A Phenomenological Study
Roger D. Dunnick
Liberty University
School of Education

Your child has been invited to participate in a research study of distance education (DE) at Nelson County High School. They were selected as a possible participant because they have been or are enrolled in a distance education course for the 2012-2013 school year. I ask that you read this form and ask any questions you may have before allowing your child to participate in the study.

This study is being conducted by: Roger D. Dunnick (Assistant Principal: NCHS), School of Education; Liberty University

Background Information

The purpose of this study is to develop an understanding of why DE has been used to supplement the curriculum at NCHS. This understanding is sought from all stakeholders to include decision makers, teachers/facilitators, students, and parents. In addition, it is the aim of this study to uncover how stakeholders believe DE can be improved at NCHS. A final aim of this study is to generate a guideline for schools similarly situated to NCHS to follow in implementing DE.

Procedures:

If you agree for your child to be in this study, he/she will be asked to do the following:
1. Schedule an interview time and location. Interviews should last between 30 minutes and 1 hour and will be recorded via a digital audio device. It may be necessary to schedule a shorter follow up interview as well.
2. Review transcript data (provided by Mr. Dunnick) of the interview(s) conducted for accuracy.

Risks and Benefits of being in the Study

Though there are risks associated with participating in this study, the risks are minimal and are associated with accidental identification of participants. Every effort has been made to ensure that no participant will be identified by name in either the research or writing phases of this project.
The benefits to participation are: It is the intent of this study to provide essential information to be used in improving DE at this school and others that are similar to it.

**Compensation:** There is no monetary compensation for participating in this study.

**Confidentiality:**

The records of this study will be kept private. In any sort of report we might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researcher will have access to the records.

All persons interviewed or observed for this study will be given an identification code. At no point will the person’s name be necessary in the research nor will names be used in the reporting of research. Code names given for the purposes of reporting will be similar to the following: Student 1, Student 2 and so on.

Furthermore, all interview and observational data will be recorded via digital audio recorders. The files created for this project will be saved on 32GB flash drive and a 1TB external hard drive. Both of these storage devices, as well as the recording devices themselves, will be stored in a locked file cabinet belonging to the principal researcher. All transcripts of the recorded data (both interview and observational) will be kept electronically in the same manner as the digital audio files. Printed copies of the transcripts will be kept in the same locked file cabinet. Printed copies of documents that may contain names of persons involved in the study will be stored securely as well. Upon completion of the mandatory three year holding period for data collected in this study, all electronic records will be deleted from storage and all printed data will be shredded.

**Voluntary Nature of the Study:**

Participation in this study is voluntary. Your decision whether or not to allow your child to participate will not affect yours or their current or future relations with Liberty University or with Nelson County High School. If you decide for them to participate, you/they are free to not answer any question or withdraw at any time without affecting those relationships. Should you choose at anytime to withdraw your child from this study, please contact Mr. Dunnick either by phone, by email, or in person expressing your intention to remove your child from this study. Upon withdraw from this study, all data collected from interviews that you may have participated in will be destroyed. This includes data collected digitally (audio recordings) and on paper (notes and transcripts). Electronic data will be deleted from all storage devices and paper data will be shredded.

**Contacts and Questions:**

The researcher that is conducting this study is: Roger D. Dunnick.

You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at Nelson County High School, 434-263-8317, rdunnick@nelson.k12.va.us. You may also direct any questions to the researcher’s faculty advisor: Dr. Judy Shoemaker, Liberty University School of Education, jshoemaker@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Institutional Review Board, Dr.
Fernando Garzon, Chair, 1971 University Blvd, Suite 1582, Lynchburg, VA 24502 or email at fgarzon@liberty.edu.

You will be given a copy of this information to keep for your records.

___ I hereby give the researcher permission to digitally record any interview that he may conduct with me or my child. (Parent)

___ I understand that all interviews with me will be recorded via a digital audio device.

**Statement of Consent:**

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature (Parent):___________________________________________Date:__________________

Signature (Student):___________________________________________Date:__________________

Signature of Investigator:____________________________________Date:__________________

Parent/Guardian Phone:________________________________________

Parent/Guardian email:________________________________________

Parent/Guardian Address:_______________________________________

________________________________________

________________________________________
Appendix B: Interest email/letter for potential study participants (Decision Makers)

Dear Sir/Madam:

I am writing today to request your participation in a study that I am conducting on the use of Distance Education at (target school). You have been selected for participation in this study based on your current or prior role in the distance education program at (target school). It is my intention that through this study the following goals will be achieved:

1. Understand how and why the DE program at (target school) has developed as it has
2. Gauge leadership, student, parent, and teacher perceptions of the DE program at (target school).
3. Develop a series of guidelines for small rural secondary schools to follow to build successful DE programs for their students.

Your participation would amount to being interviewed (with a possible follow up interview) and recorded via a digital audio device and verifying the transcript of said interview. If you do agree to participate, please call or reply by email indicating your intentions. As with any research study there may be some risk but for this project, the risk is minimal. Rest assured that your participation in this study will be completely voluntary and you may cease participation at any time. Any response that you may give in the interview setting will remain anonymous. Thank you in advance for your consideration of this proposal and I do hope to hear from you soon. If you have any questions whatsoever regarding this study, please do not hesitate to contact me.

Sincerely,

Roger D. Dunnick
Assistant Principal: target school
email: 
cell: 
Target School #:
Appendix B: Interest email/letter for potential study participants (Teachers/Facilitators)

Dear Sir/Madam:

I am writing today to request your participation in a study that I am conducting on the use of Distance Education at (target school). You have been selected for participation in this study based on your current or prior role as a teacher or facilitator in the distance education program at (target school). It is my intention that through this study the following goals will be achieved:

1. Understand how and why the DE program at (target school) has developed as it has,
2. Gauge leadership, student, parent, and teacher perceptions of the DE program at (target school),
3. Develop a series of guidelines for small rural secondary schools to follow to build successful DE programs for their students.

Your participation would amount to being interviewed (with a possible follow up interview) and recorded via a digital audio device and verifying the transcript of said interview. I may also ask your permission to observe your class for a period of time during this research. If you agree to participate, please call or reply by email indicating your intentions. As with any research study there may be some risk but for this project, the risk is minimal. Rest assured that your participation in this study will be completely voluntary, and you may cease participation at any time. Any response that you may give in the interview setting will remain anonymous. Thank you in advance for your consideration of this proposal and I do hope to hear from you soon. If you have any questions whatsoever regarding this study, please do not hesitate to contact me.

Sincerely,

Roger D. Dunnick
Assistant Principal: target school

email:
cell:
Target School #:
Appendix B: Interest email/letter for potential study participants (Students)

Dear Sir/Madam:

I am writing today to request your participation in a study that I am conducting on the use of Distance Education at (target school). You have been selected for participation in this study based on your current or prior role as a student in the distance education program at (target school). It is my intention that through this study the following goals will be achieved:

1. Understand how and why the DE program at (target school) has developed as it has,
2. Gauge leadership, student, parent, and teacher perceptions of the DE program at (target school),
3. Develop a series of guidelines for small rural secondary schools to follow to build successful DE programs for their students.

Your participation would amount to being interviewed (with possible follow up interviews) and recorded via a digital audio device and verifying the transcript of said interview. As with any research study there may be some risk but for this project, the risk is minimal. Rest assured that your participation in this study will be completely voluntary and you may cease participation at any time. Any response that you may give in the interview setting will remain anonymous. Thank you in advance for your consideration of this proposal and I do hope to hear from you soon. If you do choose to participate, please inform your parents of your intentions as they will need to sign a form stating that you have their permission to do so. I will provide you the necessary form when you indicate that you are willing to participate. If you have any questions whatsoever regarding this study, please do not hesitate to contact me.

Sincerely,

Roger D. Dunnick
Assistant Principal: target school
email:
cell:
Target School #:
Appendix B: Interest email/letter for potential study participants (Parents of DE Students)

Dear Sir/Madam:

I am writing today to request your participation in a study that I am conducting on the use of Distance Education at (target school). You have been selected for participation in this study based on your current or prior role as a parent of a student enrolled in the distance education program at (target school). It is my intention that through this study the following goals will be achieved:

1. Understand how and why the DE program at (target school) has developed as it has,
2. Gauge leadership, student, parent, and teacher perceptions of the DE program at (target school),
3. Develop a series of guidelines for small rural secondary schools to follow to build successful DE programs for their students.

Your participation would amount to being interviewed (with a possible follow up interview) and recorded via a digital audio device and verifying the transcript of said interview. If you do agree to participate, please call or reply by email indicating your intention to do so. As with any research study there may be some risk but for this project, the risk is minimal. Rest assured that your participation in this study will be completely voluntary and you may cease participation at any time. Any response that you may give in the interview setting will remain anonymous. Thank you in advance for your consideration of this proposal and I do hope to hear from you soon. If you have any questions whatsoever regarding this study, please do not hesitate to contact me.

Sincerely,

Roger D. Dunnick
Assistant Principal: target school
email: 
Mobile: 
Target School #: 

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Appendix C: Parent permission letter for student to participate in the Study on Distance Education at Nelson County High School

Dear Parent/Guardian;

I am writing today to request your permission for your child to participate in a study that I am conducting on the use of Distance Education at (target school). Your child has been selected for participation in this study based on his/her current or prior role as a student in the distance education program at (target school). It is my intention that through this study the following goals will be achieved:

1. Understand how and why the DE program at (target school) has developed as it has,
2. Gauge leadership, student, parent, and teacher perceptions of the DE program at (target school),
3. Develop a series of guidelines for small rural secondary schools to follow to build successful DE programs for their students.

Your child’s participation would amount to providing information reflecting his/her knowledge and opinions of the development and current usage of DE at (target school) as well as possibly being in a classroom that I observe for this study. As with any research study there may be some risk, but for this project, the risk is minimal. Rest assured that his/her participation in this study will be completely voluntary, and they may cease participation at any time. Any response that he/she may give in the interview setting will remain anonymous.

Thank you in advance for your consideration of this proposal. If you decide to allow your child to participate in this study, please call or reply by email indicating your/their interest. Once your permission has been given (see enclosed permission form), your child will be asked to do the following: schedule and complete a digitally recorded interview (with a possible follow-up interview) and review the transcription of the interview for accuracy. Additionally, if your child is currently enrolled in a distance education course, I may observe that class for a period of time. Please do not hesitate to contact me if you have any questions regarding this study or your child’s potential role in the study.

Sincerely

Roger D. Dunnick

Assistant Principal: target school
Target School #:
Mobile:
Email:
Appendix C (con’td.)

Parent permission form for student participation in the Study on Distance Education at (target school)

I ________________________, hereby give my permission for my child (parent name) _____________________________________________________.

(student name) to participate (as outlined in the accompanying letter to this form) in the study being conducted by Roger Dunnick concerning the use of distance education at (target school).

By signing below, I agree that I understand the following to be true:

A. My child will remain anonymous throughout the entirety of the research and reporting processes of this study
B. The risks involved in this study are minimal and include only those associated with his or her identity for which multiple measures are in place to ensure anonymity and,
C. That my child may be removed by myself or him/her self at any time for any reason from this study.

Parent/Guardian signature: __________________________________________
Date: ____________________

Parent/Guardian address: __________________________________________

Parent/Guardian email: __________________________________________
Parent/Guardian phone: __________________________________________
Appendix D

Permission to Collect Document Form

Dir Sirs:

As you are aware, I am currently in process of conducting a study on the use of distance education at “the target school”. To thoroughly investigate this topic, it is important that I have access to the documents listed below for the time periods listed. Please sign below to indicate your permission in granting my access to these documents.

Thank You,

Roger D. Dunnick

Documents requested for distance education study

1. Target School school improvement plans (last 4 years)
2. Division improvement plans (last 4 years)
3. Division technology plans (last 4 years)
4. Target School DE course offering lists (last 4 years)
5. Target School DE course enrollment, total and by course (last 4 years)
6. Annual Division Budgets (last 4 years)
7. Distance Education course syllabi
8. DE course completion rates (last 4 years)

Division Superintendent: ________________________________

date: ______________

Target School Principal: ________________________________

date: ______________
## Appendix E

Observation Protocol

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Descriptive</th>
<th>Reflective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
### Appendix F

**STUDENT ENGAGEMENT OBSERVATION AND REFLECTION TOOL**

<table>
<thead>
<tr>
<th>Name____________________</th>
<th>School____________________</th>
<th>Grade/Content__________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date______________</td>
<td>Time In ______</td>
<td>Time Out ______</td>
</tr>
</tbody>
</table>

#### OBSERVATION “LOOK-FORS”

<table>
<thead>
<tr>
<th></th>
<th><strong>Specify Examples/Non-Examples</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Engages in setting learning goals</td>
<td></td>
</tr>
<tr>
<td>2. Engages in making choices.</td>
<td></td>
</tr>
<tr>
<td>3. Engages in reading.</td>
<td></td>
</tr>
<tr>
<td>4. Engages in writing.</td>
<td></td>
</tr>
<tr>
<td>5. Engages in discussing text or other input.</td>
<td></td>
</tr>
<tr>
<td>7. Creates products.</td>
<td></td>
</tr>
<tr>
<td>8. Engages in peer tutoring, cooperative learning, reciprocal teaching, and other cooperative group structures: <strong>Specify</strong></td>
<td></td>
</tr>
</tbody>
</table>
| 10. Applies meta-cognition strategies, **Specify:**  
a) Making connections  
b) Inferring/Generating Hypotheses/Predicting  
c) Asking/generating questions  
d) Determining importance/big ideas  
e) Summarizing  
f) Visualizing  
g) Synthesizing  
h) Monitoring and clarifying |  |
| 11. Creates/uses learning tools, **indicate:**  
a) Concept mapping  
b) Advance/graphic organizers  
c) Manipulatives  
d) Technology  
e) Other, **Specify** |  |
| 12. Engages in self-assessment of their work, what they learn, and how they learn |  |
13. Engages in asking for and giving specific feedback to peers and to the teacher.

<table>
<thead>
<tr>
<th>Lower-Yield Practices for Students</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Completes worksheet, homework</td>
<td></td>
</tr>
<tr>
<td>2. Engages in oral turn taking</td>
<td></td>
</tr>
<tr>
<td>3. Responds orally</td>
<td></td>
</tr>
<tr>
<td>4. Engages in listening</td>
<td></td>
</tr>
<tr>
<td>5. Engages in off-task behaviors</td>
<td></td>
</tr>
</tbody>
</table>

(College of William and Mary, SCHEV, & VDOE, 2012)
Appendix G

Data Comparison Form

Include themes drawn from each key data point for the following research questions.

Research Question #1: What are the benefits of DE usage at the target school?

Interviews:

______________________________________________________
______________________________________________________
______________________________________________________
______________________________________________________
______________________________________________________
______________________________________________________

Document Review:

______________________________________________________
______________________________________________________
______________________________________________________
______________________________________________________

On-site observations:

______________________________________________________
______________________________________________________
______________________________________________________
______________________________________________________

Research Question #2: What barriers exist(ed) to implementation of DE at the target school, and how did the target school overcome identified barriers?

Interviews

______________________________________________________
______________________________________________________
______________________________________________________
Research Question #3: What is the structure of DE at the target school, i.e. format, course providers, patterns of usage, and program evaluation measures?

Interviews

Document Review

On-Site Observations
Research Question #4: What suggestions do stakeholders have for improving DE at the target school?

Interviews

Document Review

On-Site Observations
Appendix H

Interview for DE Decision Makers

1. On a scale of 1-10 with 1 being the least important and 10 being the most important, how important is DE as a supplement to the curriculum for this school?____

2. What experience (if any) have you had with DE in your career in education?

3. How would you describe your role in the decision making process with regards to DE at this school?

4. What benefits do you see DE providing this school?

5. What barriers have been overcome to implement DE at this school?

6. Do barriers still exist (yes/no)? If yes, please identify these barriers.

7. How are students and teachers/facilitators prepared to participate or implement DE courses at this school?

8. What evaluation measures are used to determine the success/benefits (or lack thereof) of DE at this school?

9. Which format(s) (synchronous, asynchronous, hybrid) do you consider preferable for DE?

10. Which delivery system for DE is most used at this school, why?
   
   A. Virtual Virginia
   
   B. Post-secondary institutions
   
   C. Private vendors
   
   D. Other____________________________________

11. In what ways has DE been used at this school other than for regular course credit?
Appendix H (cont’d.)

Interview for DE Decision Makers

12. On a scale of 1-10 with 1 being the least satisfied and 10 being the most satisfied, how would you rate your level of satisfaction with DE at this school? _____

13. How does the new requirement for all students entering ninth grade in 2013-2014 change the plan for DE at this school?

14. What ideas or suggestion for improvement of DE at this school would you have?

15. Do you have any additional comments regarding DE for this school at this time?
Appendix I

Interview for Teachers/Facilitators of DE

1. On a scale of 1 being not important and 10 being the most important, how important do you feel DE is as a supplement to the curriculum at this school? _____

2. For what reason(s) have you chosen to teach/facilitate DE course(s)?

3. How many courses have you taught/facilitated at this school by way of the DE format?
   (0-1), (2-3), (3-4), (more than 4)

4. How have you been prepared to teach/facilitate DE courses at this school?

5. Describe any problems or challenges you have faced through your DE experience?

6. What have been the benefits of your DE experience?

7. Which has been your most favorite DE course to teach/facilitate? ___________; Why?
   Which has been your least favorite DE course to teach/facilitate? ___________; Why?

8. On a scale of 1-10 with 1 being the least satisfied and 10 being the most satisfied, how would you rate your satisfaction level with DE at this school?

9. Do you plan to teach/facilitate DE courses in the future (yes/no)? Why, why not?

10. What is your opinion of the new General Assembly legislation requiring all ninth grade students entering high school in 2013-2014 to take at least one virtual course? How will this impact you?
Appendix I Cont’d.

11. What ideas or suggestions for improvement of DE at this school would you have?

12. Do you have any additional comments regarding DE at this school at this time?
Appendix J

Interview for students enrolled in DE courses

1. On a scale of 1-10 with 1 being the least important and 10 being the most important, how important do you feel DE is as a supplement to the curriculum at this school?____

2. Including this semester, how many DE course have you taken?
   
   (0-1), (2-3), (4-5), (more than 5)

3. For what reason(s) did you choose to take a DE course at this school?

4. How (if at all) were you prepared to take DE courses at this school?

5. Describe any problems or challenges that you have faced through your DE experience at this school?

6. What is your most favorite DE course that you have taken?_________? Why?

7. What is your least favorite DE course that you have taken?_________? Why?

8. What have been the benefits of your DE experience at this school?

9. Do you plan to take a DE course in the future, (yes/no)? Why, why not?

10. On a scale of 1-10 with 1 being the least satisfied and 10 being the most satisfied, rate your level of satisfaction with the DE course(s) you have taken._____

11. How will the new requirement for all students to take at least one virtual course beginning with incoming freshmen for 2013-2014 effect you? What is your opinion of this new law?

12. What ideas or suggestions for improvement of DE at this school would you have?

13. Do you have any additional comments at this time regarding DE at this school?
Appendix K

Interview for parents of students enrolled in DE courses

1. On a scale of 1-10 with 1 being the least important and 10 being the most important, how important do you feel DE is as a supplement to the curriculum at this school?_____

2. Why did you choose a DE course for your child?

3. Was your child was adequately prepared to take a DE course at this school (yes/no)? If yes, how? If no, why not?

4. What problems or challenges did you or your child encounter with respect to their enrollment in a DE course?

5. What benefits did you or your child receive from participating in a DE course?

6. On a scale of 1-10 with 1 being the least satisfied and 10 being the most satisfied, how would you rate your level of satisfaction with your child’s DE experience at this school?____

7. How will the new requirement for all students to take at least one virtual course beginning with incoming freshmen for 2013-2014 effect you or your student? What is your opinion of this new requirement?

8. What ideas or suggestions for improvement of DE at this school would you have?

9. Do you have any additional comments regarding DE at this school that you would like to share at this time?
Appendix L

Interview Review Sheet

Interview For…

Date:________________

___ Decision Makers
___ Teacher/Facilitator
___ Student
___ Parent

Participant___________________________

Setting:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Interviewee Behavior:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Researcher Behavior:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Transcription Complete:  Yes/ No  If yes, date

complete:___________
Appendix M
Document Analysis Form

Document Reviewed:______________________________________________

Date:______________

State evidence from this document as it pertains to the following research questions

1. What are the benefits of DE usage at the target school?
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________

2. What barriers exist(ed) to implementation of DE at the target school, and how did the target school overcome identified barriers?
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________

3. What is the structure of DE at the target school, i.e. format, course providers, patterns of usage, and program evaluation measures?
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________

4. What suggestions do stakeholders have for improving DE at the target school?
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
Appendix N

Interview Participant/ Pseudonym list

<table>
<thead>
<tr>
<th>Participants</th>
<th>Pseudonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decision Makers</strong></td>
<td></td>
</tr>
<tr>
<td>DM1</td>
<td>Mary</td>
</tr>
<tr>
<td>DM2</td>
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