

2016

Positive and Negative Experiences of Career Technical Secondary Students in Online Courses

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Walden University

College of Education

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Dave Harms

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Walden University

2016

Abstract

Positive and Negative Experiences of Career Technical Secondary Students in Online
Courses

by

David Matthew Harms

MEd, Lourdes College, 2008

BS, Bowling Green State University, 2002

Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
Technology Specialization

Walden University

June 2016

Abstract

Research indicates that secondary students who are successful in online classes share common traits. However, many secondary career technical education (CTE) students taking online courses do not demonstrate the traits identified for success. CTE students may not benefit from online classes unless they are designed with their needs in mind. The purpose of this study was to investigate current CTE student experiences with online classes at a single career center. The research questions investigated CTE experiences with online classes, positive and negative online design features, and the hybrid classroom. The theoretical framework was constructivism. The purposive sample included 12 student participants (3 participants from each of 4 CTE career clusters) and 1 paraprofessional in charge of the classroom. Data included individual and small group interviews and observations. Participants reported that the current online course design, primarily text followed by a traditional assessment, was problematic. Instructional design features that assisted CTE students included individual pacing, instant feedback on assessments, and class organization. Features that did not assist students included content issues, technology issues, and limited testing options. Hybrid environment features that assisted CTE students included having a set time and place, access to technology, and the support of a paraprofessional. Career technical education in general may benefit from this research. Effective online education may provide greater opportunities for a larger audience of learners; their improved preparation helps students contribute more to the work force and gain more in terms of career success.

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Dedication

This dissertation is dedicated to my family who has had to endure my constant emphasis on schoolwork for the last 16 years.

Acknowledgments

This dissertation would not be possible without the assistance and guidance of my chair, Dr. Brown, who helped resurrect this study after my original committee resigned. In addition to my chair, my methodologist, Dr. Green, assisted me in completing the study. I would also like to acknowledge all of my professors at Walden University. Without their guidance, this dissertation would not have been possible. Finally, I would like to acknowledge my chair for my master's thesis, Dr. French, whose encouragement inspired me to pursue a higher degree.

Table of Contents

List of Tables	viii
Chapter 1: Introduction to the Study.....	1
Background.....	1
Problem Statement.....	4
Purpose of the Study.....	5
Research Questions.....	6
Theoretical Framework of the Study	6
Nature of the Study.....	8
Definitions.....	8
Assumptions.....	9
Scope and Delimitations	9
Limitations	10
Significance.....	11
Summary.....	12
Chapter 2: Literature Review.....	13
Literature Search Strategy.....	13
Value of Career Technical Secondary Education	13
Analysis of Value of Career Technical Secondary Education.....	16
Identified Positive Experiences with Online Secondary Education	17
Effectiveness of Online Secondary Education.....	17
Student Views.....	18

Positive Online Secondary Teacher Traits.....	18
Positive Online Classroom Traits	20
CTE Online Applications.....	20
Analysis of Identified Positive Experiences with Online Secondary Education	21
Identified Negative Experiences with Online Secondary Education	22
Student Views	22
Access Issues	23
Population Issues	24
Teacher Professional Development Issues.....	25
Design Issues	27
Analysis of Identified Negative Experiences with Online Secondary Education	28
Chapter Summary	28
Chapter 3: Research Method.....	29
Research Design and Rationale	29
Identify the Research Tradition	30
Rationale for the Chosen Tradition.....	32
Research Questions.....	34
Participant Selection	35
Population	35
Sampling Strategy.....	35
Criteria for Participant Selection	36

How Participants Met Criteria	37
Number of Participants and Rationale for Number	37
Participant Identification, Contact, and Recruitment.....	38
The Relationship between Saturation and Sample Size.....	40
Researcher’s Role	41
Role of the Researcher	41
Personal and Professional Relationships	41
Researcher Biases/ Power Relationships	41
Ethical Issues	42
Instrumentation	43
Individual Interview.....	43
Focus Group Interview	44
Direct Observation	45
Source of Data Collection Instruments	45
Document Discussion	46
Sufficiency of Instruments to Answer Questions	47
Basis for Instrument Development	48
Establishment of Content Validity.....	48
Data Collection Procedure	49
Individual Interviews	49
Small Group Interview.....	49
Observation.....	49

Explain how Participants Exit the Study	50
Follow-Up Procedures	50
Manner of Treatment of Discrepant Cases	51
Data Analysis Plan	51
Issues of Trustworthiness.....	52
Internal Validity	52
External Validity.....	52
Reliability.....	53
Confirmability.....	54
Ethical Procedures	55
Agreements to Gain Access to Participants	55
Description of the Treatment of Human Participants	55
Description of Treatment of Data	56
Other Ethical Issues	57
Chapter Summary	57
Chapter 4: Results.....	58
Research Questions.....	58
Setting	59
Demographics	61
Data Collection	64
Data Analysis	66
Categories That Aligned With the Primary Research Question	66

Attitude Toward Online Class	66
Online Class Expectations	67
Online Class Routines.....	68
Typical Online Lesson	70
Summary of the First Research Question Results.....	74
Category that Aligns with the Second Research Question	75
Helpful Online Design	75
Summary of the Second Research Question Results	78
Categories that Align with the Third Research Question	78
Online Difficulties	78
Recommendations to Improve Online Classes for Secondary CTE.....	81
Summary of the Third Research Question Results.....	82
Categories that Align with the Fourth Research Question.....	83
Hybrid Class Routine.....	83
Hybrid Class Experiences	84
Summary of the Fourth Research Question Results	87
Evidence of Trustworthiness.....	87
Internal Validity	87
External Validity.....	88
Reliability.....	88
Confirmability.....	88
Results.....	89

Research Question 1	89
Research Question 2	90
Research Question 3	90
Research Question 4	91
Summary	91
Chapter 5: Discussion, Conclusions, and Recommendations	94
Interpretation of the Findings.....	95
Findings Based on the Central Research Question	95
Findings Based on the Second Research Question	97
Findings Based on the Third Research Question	98
Findings Based on the Fourth Research Question	99
Findings Aligned With Previous Studies	100
Positive Experiences With Online Secondary Education	101
Negative Experiences With Online Secondary Education.....	102
Summary of Findings Aligned to the Review of Literature	104
Limitations of the Study.....	105
Implications.....	109
Positive Social Change	109
Methodical, Theoretical, and/or Empirical Implications	110
Recommendations.....	111
Recommendations for Practice	112
Summary of the Findings.....	112

Instructional Designers	113
Secondary CTE Students	114
Parents of Secondary CTE Students	114
Career Technical Education Councilors and Administrators.....	115
Policymakers.....	116
Paraprofessionals or Teachers Administrating a Hybrid Classroom for Secondary CTE Students	117
Conclusion	119
References.....	121
Appendix A: First Individual Interview Questions.....	134
Appendix B: Second Individual Interview Questions	136
Appendix C: Focus Group Interview Questions.....	138
Appendix D: Paraprofessional Interview Questions.....	139
Appendix E: Paraprofessional Participant Consent Form	140
Appendix F: Participant Consent Form	142
Appendix G: Student Observation Schedule	145
Appendix H: Paraprofessional Observation Schedule.....	146

List of Tables

Table 1. Content Provider Pseudonyms	61
Table 2. Participant Pseudonym/ Program/ Cluster	63
Table 3. Additional Pseudonyms	64
Table 4. Amount of Text	73
Table 5. Recommendations of Study	118

Chapter 1: Introduction to the Study

Online secondary education has been rapidly expanding in the United States (Feng & Cavanaugh, 2011; Fischer, 2009). Depending on the source used, it has been reported that over one million students in the United States are now enrolled in online education (Thompson, Ferdig, & Black, 2012), or there are currently 14 million students in the United States enrolled in career technical education (CTE) (National Association of State Directors of Career Technical Education Consortium, 2014b). Online courses are currently designed for secondary students attending a traditional high school. CTE students also take academic courses online. There is little knowledge of how current secondary CTE students perceive online course design. This case study adds to the educational technology knowledge base by identifying positive and negative experiences of 12 CTE students who had participated in a blended online academic course at the same career center in the spring of 2015. This study was conducted to identify what is working and what is not working in current online courses for CTE students. Study findings may be used to design new online courses for CTE students and expand research addressing online academic skills and traits of CTE students. This chapter includes the background of the study, problem statement, purpose of the study, research questions, theoretical framework for the study, nature of the study, definitions, assumptions, scope and delimitations, limitations, significance, and a summary.

Background

The purpose of secondary CTE is to train students to be both career and college ready (Bragg, 2007; Drage, 2009; Haskell & Haskell, 2008). Many U.S. employers are

demanding an increase in secondary CTE (White, 2012). Half of U.S. high school graduates, known as America's "forgotten half," are unprepared for college and would be better served by secondary CTE (Henry, 2012). Henry (2012) hypothesized that U.S. government policy unfairly pushes students into four-year colleges who would be better served by secondary CTE programs. CTE is described as the most ambiguous sector of education because it is vaguely defined. CTE prepares students for participation in the workforce and is unique because it occurs both in the classroom and in the workplace (Karmel, 2010). The dual credit options currently offered in CTE, such as Ohio's Tech Prep program, are essential to build student confidence and expose them to postsecondary education options (Bishop-Clark et al., 2010).

CTE is an important component in the U.S. education system. In the last 15 years, secondary CTE has been repositioned from the traditional vocational focus of preparing students for immediate employment to preparing students for the emerging job market and further education (Bragg, 2007). CTE enrollment has been identified as having an inverse relationship with dropouts who are identified as emotional and behavioral disturbed (E/BD). E/BD students who complete CTE make significantly more money after graduation (Sitlington & Neubert, 2004). Additionally, CTE students who completed future teacher education were found to require 25% less remediation in their transition to postsecondary studies (Bragg, 2007).

Unfortunately, there is little research specifically investigating secondary CTE. According to Konradt (2004), "little is known about computer-based learning in vocational contexts" (p. 181). More research on CTE has been conducted at the

postsecondary level. Journell (2010) warned that research conducted on postsecondary students might not be applicable to secondary students. There is also a negative connotation attached to secondary CTE in the United States (Symonds, Schwartz, & Ferguson, 2011), which may explain the lack of secondary CTE literature.

Internationally, CTE is identified as an essential component of other countries' educational systems. Many of these countries have been identified as leading the United States in both math and science. In the United States, CTE is not provided equally in all states and regions. For example, the State of Washington requires every secondary student to complete a course that investigates careers and culminates with the development of an individualized education plan for a chosen career (Siegel, 2009).

There are many positive experiences that have been identified by online learners. Students involved in hybrid classes reported that they enjoyed both the flexibility offered in the online environment and the face-to-face access to the instructor (El Mansour & Mupinga, 2007). Students also reported that they enjoyed learning with technology, working collaboratively, and learning in the online environment (O'Dwyer, Carey, & Klieman, 2007). Additionally, students involved in online courses liked the flexibility of the schedule, additional methods of reflection, and the ability to complete course work in any location (El Mansour & Mupinga, 2007). Math students in Louisiana reported positive experiences with using the online environment for math instruction (O'Dwyer et al., 2007). Further, students work collaboratively on task more often online than they do in traditional classes, and online students performed better on 18 of the 25 items in the posttest and in all items requiring real world application of Algebraic functions than

traditional students (O'Dwyer et al., 2007). Positive experiences have also been reported for CTE students. Online classes have the following advantages for students in a vocational context: lower costs, flexible schedule, mobile location, and topic integration with other materials (Konradt, 2004). Online instruction has increased student content comprehension and student course efficacy for vocational students (Konradt, 2004).

Prior research on secondary online education, CTE learning preferences, and postsecondary online career oriented education exists; however, there is a gap in the literature addressing online secondary CTE specifically. Because CTE students are enrolled in online classes, research is needed to identify positive and negative experiences within the online learning platform. It is important to identify CTE students' experiences with online courses so that future instructional designers can design quality online classes that allow CTE students to be successful in the online environment.

Problem Statement

Many secondary CTE students currently enrolled in online courses do not demonstrate the traits previously identified through research as necessary for online course success. Many secondary CTE schools have implemented online classes for students who are credit deficient. There are many successful traits that have been identified for online course success. Brenner (2007) identified individual motivation as a factor for online course success. Picciano and Seaman (2007) found that individual student discipline is a factor for student online success. Additional traits include previous grade point average, student self-efficacy, and the inclusion of a blended environment as factors in successful online learning (Roblyer, Davis, Mills, Marshall, & Pape, 2008).

Additionally, online success factors include strong writing, time management, technology skills, and self-motivation (Wallace, 2009). Further, student prior experience with online classes was found to indicate student online course success (Ronsisvalle & Watkins, 2005). However, CTE students were identified as visual learners and hands-on learners who like to learn in groups (Karmel, 2010). Another study indicated that many CTE students were not independent learners and avoided text-based instruction (Vorhaus, 2010).

Not all CTE students learn the same way, and female CTE students tend to be more self-directed than male CTE students (Vorhaus, 2010). A disconnect exists between CTE students and online instruction where CTE students are “dependent learners, preferring visual means of presenting and absorbing information” (Vorhaus, 2010), but online instruction is designed for independent learners who are oral and text-based learners (Vorhaus, 2010). Palmer and Guant (2007) found that secondary CTE students had lower grades, less income, and more instances of living in a nontraditional home than traditional students. A gap in the literature exists regarding secondary CTE students’ experiences in online courses.

Purpose of the Study

The purpose of this qualitative case study was to describe positive and negative experiences of secondary CTE students working in an online environment. This study was a first step in investigating secondary CTE students’ views of online classes. Because secondary CTE students are enrolled in online classes, research needed to be conducted to identify the best design practices to help this unique population achieve success.

Results can be used to assist instructional design of future online courses for secondary CTE students. This qualitative study included the social constructivist paradigm. Social constructivism is a paradigm used to investigate participants' perspectives through open-ended questioning (Creswell, 2009). The central phenomenon for this study focused on secondary CTE students' perceptions of current online CTE courses. The central phenomenon for this study is how CTE students perceive both positive and negative experiences in an online hybrid course.

Research Questions

The central research question that guided this study was as follows:

1. What are secondary CTE students' views of their experiences with current online classes?

Additional questions that guided the study included:

2. What online instructional design features do CTE students identify that help them succeed in online courses?
3. What online instructional design features can be identified that do not assist online CTE students in online courses?
4. What features in an enclosed hybrid environment assist secondary CTE students?

Theoretical Framework of the Study

This study was designed using the constructivist philosophy and constructivism as its theoretical lens. Creswell (2009) suggested that qualitative case study research is usually based on a constructivist framework that includes open-ended questions. Creswell

stated that theory in qualitative research should be used as a “theoretical lens” (p. 60).

Patton (2002) explained that, according to constructivists, human knowledge is built from individual experiences.

Palloff and Pratt (2005) pointed out that collaboration in online classes is a key component to constructivist thinking. Molenda (as cited in Spector, Merrill, van Merriënboer, & Driscoll, 2008) suggested that educational technologists have embraced constructivism. Fox (as cited in Spector et al., 2008) revealed that constructivism could be divided into radical constructivism and social constructivism. Fox concluded that all forms of constructivism lend to qualitative inquiry. Ragan, Smith, and Curda (as cited in Spector et al., 2008) concluded that guided discovery, coaching, and cognitive apprenticeship were all examples of constructivist learning. Patton (2002) stated that constructivists study specific cases and are less inclined to offer results that are transferable to different populations. Patton concurred that case study research lends itself to constructivism.

Creswell (2009) explained that constructivists argue that people build understanding of the world through their experiences. Patton (2002) explained that constructivists attempt to report different experiences through the collection of multiple types of data. Patton stated that constructivists think reality is constructed in participants’ minds. Maxwell (2005) defined *theory* as a useful simplification of how the world works to enhance understanding. Constructivists argue that students learn through their experiences. Because my study addressed student views of their experiences with online education, I chose constructivism as the appropriate theoretical framework. I investigated

student experiences with online instruction. The research questions aligned with a constructivist view because they addressed student views of their experiences with online education.

Nature of the Study

This study included a case study design with multiple embedded units of analysis. Triangulation of data occurred through individual interviews, observations, and small group interviews. Yin (2009) suggested that case studies should be used when the questions demand an investigation of “a contemporary phenomenon within a real-life context” (p. 18). Yin (2012) explained that case study is the recommended research design for current phenomena because of the importance of multiple types of evidence (p. 4). Miles and Huberman (1994) pointed out that one of the strengths of qualitative research is that the results report actual life. In this case study, I investigated the experiences of 12 students who were taking an online course at a secondary career center in the Midwestern United States. Data were collected through individual interviews, observations, and small group interviews and analyzed to identify emerging themes.

Definitions

The following key terms were used in this study:

Career technical education (CTE): Secondary education that prepares students to be career and college ready. CTE was formerly known as vocational education (Bragg, 2007; Drage, 2009; Haskell & Haskell, 2008).

Vocational education and training (VET): The European term used as an equivalent to CTE that may refer to both secondary and postsecondary education (Symonds et al., 2011).

Assumptions

The following assumptions were made in this study:

1. CTE students were available to participate in the entire study.
2. CTE students were honest in their interviews.
3. The purposeful sample represented the population of CTE students.

Because this case study relied on the experiences of the participants, these assumptions are critical to the findings of the study.

Scope and Delimitations

Many secondary CTE students currently enrolling in online courses do not demonstrate the traits identified through research as necessary for online course success. Currently, many secondary CTE students are engaging in online coursework for credit recovery. Because this practice at career technical centers is currently being used, my study focused on the experiences of secondary CTE students in online courses.

The population of this study was 12 career technical students enrolled in a hybrid online class at a career technical center in Ohio. The students were chosen by a purposeful sample to allow for maximum variation. The 12 students were chosen to represent the four different clusters identified in the site. Three students per cluster were used to ensure data saturation. Students were divided into four career clusters within the career technical center with career programs that were similar. For example, the human

service cluster included students enrolled in culinary, early childhood education, and cosmetology. Manufacturing included students enrolled in auto technologies, welding, and auto collision repair. The four clusters include human services, manufacturing, health/ business, and construction. I hypothesized that each cluster attracts different styles of learners, so the purposeful sample ensured that all clusters would be represented. This allowed me to identify what online practices are currently working for general CTE students. The National Association of State Directors of Career Technical Education Consortium (2013) reported that 14 million students in the United States are currently enrolled in CTE. These students need to have quality online options designed for their success.

Because this was a qualitative case study, clear and concise description was included to determine whether results could be transferred to another student population. Yin (2012) described a case study as an attempt to produce a “deep understanding” of a situation (p. 4). Frankfort-Nachmias and Nachmias (2008) added that qualitative data help researchers formulate hypotheses. Many secondary students are enrolled in CTE in the United States and around the world, and the results of this study may be used to create quality online courses designed to increase CTE student success in the growing field of online education.

Limitations

The primary limitation of this qualitative case study was the small sample size of 12 CTE students. The sample included three participants per career cluster which ensured representation from each cluster. A sample size of eight (two participants per cluster)

suggested a risk for potential dropouts. Interviews were recorded and transcribed. Three participants per career cluster provided an overview of CTE students enrolled in online courses and ensured completion of the study. Merriam (2009) explained that one of the strengths of case study research is that it provides a “rich, thick description” (p. 43) of the case under investigation. This study provided a detailed account of the experiences of 12 CTE secondary students taking online courses. Although this sample size allowed for an in-depth understanding of the participants’ views, further research is necessary to apply results to other populations of CTE students. Another limitation is that CTE is taught and defined differently among schools, states, and countries. Since CTE is implemented differently in different locations, research needs to be conducted to identify online strategies that will assist CTE student online success.

Significance

This study was conducted to describe secondary CTE students’ views of current online education delivered in a hybrid environment. Views were categorized as both positive and negative. The results of this study may be helpful to instructional designers creating online courses for secondary CTE students. CTE students considering online education may use the results to make a more informed decision. Hybrid classroom monitors will find this research relevant when establishing a hybrid classroom environment and rapport with secondary CTE students. Researchers investigating both online secondary education and secondary CTE can build on the results of this study. Politicians and policymakers may use this study’s results when designing future educational policies and guidelines for secondary CTE students. Study results may

increase instructors' understanding of CTE students' needs in the online environment. Identifying CTE students' positive and negative views of current online instruction may allow future online courses to be designed to increase course completion rates and student comprehension and retention of content.

Summary

This chapter included the introduction, background of the study, problem statement, purpose of the study, research questions, theoretical framework for the study, nature of the study, definitions, assumptions, scope and delimitations, limitations, and significance. This qualitative case study addressed 12 CTE students' views of and experiences with online instruction. Chapter 2 includes an introduction, literature summary, literature review focusing on the value of CTE, and a description of students' positive and negative experiences with online secondary education.

Chapter 2: Literature Review

This study added to the knowledge on educational technology by identifying positive and negative experiences secondary CTE students have in a blended online academic course. This study was necessary to assess what works and what does not work for secondary CTE students in current online courses. Findings from this study can be used to design new online courses for secondary CTE students and to help expand research that identifies online academic skills and traits of secondary career technical students.

Literature Search Strategy

The purpose of this review was to assess what research has been completed on the value of secondary CTE, and both positive and negative experiences identified with online secondary education. The following databases were used in this review of literature: Questia, Academic Search Complete, Education Research Complete, Educational Resource Information Center (ERIC), ProQuest Central, SAGE Premier, and ScienceDirect. I also used the Google Scholar search engine. I used the following search terms: *career technical online education, vocational online, vocational, CTE, career technical education, secondary CTE, secondary career technical education, and online secondary education.*

Value of Career Technical Secondary Education

Career Technical Education (CTE) is a component of the U.S. education system. Secondary CTE has been reinvented from its traditional vocational focus of preparing students for immediate employment to the career technical focus of preparing students for

both the emerging job market and further education (Bragg, 2007; Drage, 2009).

Symonds et al. (2011) suggested that high school dropouts are a drain on U.S. society and investigated the frequency of prison time, increased single-parent households, and high rates of unemployment of high school dropouts. They reported the U.S. spends an average of \$300,000 per high school dropout (Symonds et al., 2011). CTE completion has been found to reduce the amount of remediation by 25% in postsecondary schools (Bragg, 2007). Students with autism spectrum disorder (ASD) rely on CTE education to prepare themselves for employment in the workforce (Allen, Wallace, & Renes, 2010). CTE students are required to meet all state-mandated test requirements, state graduation requirements, and state standards, while additionally acquiring specialized career training and postsecondary credit opportunities (Bragg, 2007). Many CTE students are exposed to postsecondary options while attending secondary CTE. At one career center in Ohio, qualified CTE staff teach postsecondary courses in math and physics, and 96% of CTE student participants reported positive experiences with college level classes (Bishop-Clark et al., 2010). Students whose future career plans align with their program of study performed better than students who were unclear of their future (Dennis, Duffy, & Cakir, 2010). Secondary CTE increases student participation; enhances student academic achievement in math, science, and literacy; prepares students for industry demands; and increases the skill levels of the future workforce (Drage, 2009). Tri County Career Center in Ohio strengthens the relationship between secondary and postsecondary education through an online digital portfolio that has been incorporated into a senior project (Haskell & Haskell, 2008).

There have been many problems associated with current secondary education in the United States. Wesch (2008) argued that the largest deficiency in secondary education is its lack of relevance to students' future lives. Siegel (2009) reported that the Common Core movement in K-12 education prepares students only for academic success on standardized tests. Half of high school graduates in the United States do not graduate with the skills required for employment in today's workforce, including communication skills, critical thinking skills, professionalism, the ability to solve problems, and creativity skills (Symonds et al., 2011). Secondary CTE trains students to be college and career ready, and relevance is embedded in career courses. One proposed option to increase U.S. secondary academic achievement is to model CTE on the vocational education and training (VET) model used in Europe (Symonds et al., 2011). The Association for Career and Technical Education (2010) suggested that the addition of quality online CTE would ensure that all students had access to CTE regardless of their proximity to a career center.

CTE is not a component of secondary education only in the United States; it is also a component in many other areas of the world. Secondary CTE participation is popular in other countries. For example, over half of all secondary students enrolled in schools in the Netherlands attend CTE (Boersma, ten Dam, Volman, & Wardekker, 2010). Career guidance in the Netherlands between teachers and CTE secondary students was deemed insufficient, and professional development was recommended to help CTE teachers guide career planning for secondary CTE students (Mittendorff, den Brok, & Beijaard, 2010). In Australia, CTE has been shown to adequately prepare students for

postsecondary studies, but many underlying socioeconomic factors inhibit CTE students from continuing on to postsecondary education (Moodie, 2009). VET students in Europe were identified as visual learners who preferred hands-on instruction, collaborative learning, and clear, concise instructions; VET students do not learn well through text and do not work well as independent learners (Vorhaus, 2010). Additionally, VET teachers described VET students as visual learners and dependent learners (Vorhaus, 2010). One must be careful comparing CTE in the United States to CTE in other countries because of differences in CTE definitions and implementations. For example, CTE secondary students in Turkey reported CTE teachers sometimes used physical punishment including pulling ears, beating, and forcing students to stand as a method of classroom management, which would be considered illegal in the United States (Gulcan, 2010).

Analysis of Value of Career Technical Secondary Education

The literature in this section helps establish the relevance of secondary career technical education (CTE) in the United States. Secondary CTE allows students to prepare for future postsecondary studies while exposing them to career skills. CTE fills a gap in traditional public education by increasing graduation rates among at-risk populations and increasing retention rates of students with disabilities. The National Association of State Directors of Career Technical Education Consortium (2014b) reported that approximately 14 million students in the United States are enrolled in career technical education. Thompson et al. (2012) reported that over one million students were enrolled in career technical education in the United States. CTE-specific research needs to be conducted on this emerging student population.

Identified Positive Experiences with Online Secondary Education

Effectiveness of Online Secondary Education

Secondary online education has been recognized as an acceptable alternative to traditional secondary education in the United States (Kerr, 2011). Research has been conducted on the effectiveness of online secondary education, which has been found to be more effective in promoting academic success than traditional face-to-face education with both postsecondary and secondary populations (Association for Career and Technical Education, 2010; Means, Toyama, Murphy, Bakia, & Jones, 2009). Other studies indicated that online secondary education students achieved equal academic success when compared to traditional secondary students (O'Dwyer et al., 2007; Rockman, 2007). K-12 students receiving some type of online instruction have been found to academically outperform students receiving only traditional face-to-face instruction (Patrick & Powell, 2009). Allen et al. 2010 found that video modeling helped alleviate issues experienced by students with Autism Spectrum Disorder (ASD), such as difficulty in traditional CTE classes including face-to-face social skills and following live teacher presentations. Properly designed online secondary classes provide opportunities for all secondary students to achieve academic success. Barbour and Mulcahy (2010) reported that Canadian students enrolled in online secondary education did at least as well academically as traditional students and many performed better. Researchers also discovered that blended secondary education students outperformed both traditional secondary students and solely online secondary students in academic achievement (Means et al., 2009; Patrick & Powell, 2009). Teachers and parents reported decreased

discipline issues with online students in Grades 2, 4, and 6 compared to traditional face-to-face students (Sivin-Kachala & Bialo, 2009).

Some worry about the social development of K-12 students participating in online education. However, Patrick and Powell (2009) revealed that online K-12 student social skills developed the same compared to traditional K-12 student social skills.

Additionally, online students in Grades 2, 4, and 6 were found to have the same or advanced social skills when compared to traditional face-to-face students (Sivin-Kachala & Bialo, 2009). Nevertheless, these online students did display fewer self-control skills than their traditional face-to-face counterparts (Sivin-Kachala & Bialo, 2009).

Student Views

Many positive experiences have been reported by online learners. Secondary students reported that online classes were easier and quicker to complete than traditional face-to-face classes (Journell, 2010). Further, online algebra students earned higher test scores in 18 out of 25 items on a posttest and were able to apply algebra to real world problems at a greater rate than traditional students (O'Dwyer et al., 2007). Another benefit of online secondary education is that learning experiences delivered through the use of technology may be impossible to deliver in a traditional classroom (Association for Career and Technical Education, 2010; Moore et al., 2007).

Positive Online Secondary Teacher Traits

Many positive secondary online teacher traits were identified in the literature. One important online secondary teacher trait is frequent instructor–student communication (De Agostini, 2011; Kerr, 2011; Rockman, 2007). Another study indicated that increased

teacher feedback in secondary online classes revealed no significant difference in student academic performance (Feng & Cavanaugh, 2011). Other positive online secondary teacher traits included strong classroom management skills and knowledge and implementation of online pedagogical practices (DiPietro et al., 2008). DiPietro (2010) conducted a grounded theory study and identified five themes common to quality online teachers: connecting with students, fluid practice, engaging students with the content, managing the course, and supporting student success. Additional qualities were identified as content knowledge, clear academic honesty plans, and excellent communication between teachers and student mentors (DiPietro, 2010). Another study showed that effective online secondary teachers monitor and model technology tools to entice student adaption (Kerr, 2011). Kerr (2011) identified the following 10 secondary online practices: multiple sources of content, provide timely feedback, provide opportunities for student choice, integrate management of student learning in the structure of the course, include rubrics, include models, create authentic learning experiences, have fun with student introductions, consider the power of social networking, and ensure students are aware of the technology requirements. Good communication is an indicator of secondary online student success both formally through timely feedback and informally through humor (Murphy & Rodriguez-Manzanares, 2009a). To help motivate secondary online students, online secondary teachers frequently incorporate extrinsic rewards (Murphy & Rodriguez-Manzanares, 2009a).

Positive Online Classroom Traits

Researchers have identified many positive traits of successful online secondary classrooms. DiPietro (2010) reported the presence of a quality student mentors increased secondary student academic success. Murphy & Rodriguez-Manzanares (2009b) found that student mentors were essential because they assisted teachers identifying individual student learning styles in the online environment. Rockman (2007) reported that mentors who were involved in their students' learning increased student engagement Quality online secondary classes incorporated strategies to enhance student-to-student communication, improve student technology skills, and promote multiple types of writing activities including informal writing in forums (Kerr, 2011). Quality integration of online secondary courses in traditional schools requires a dedicated time, dedicated space, and adequate technology for student academic success (Kerr, 2011). Murphy and Rodriguez-Manzanares (2009a) recommended including a checklist to help secondary students manage their time.

CTE Online Applications

There have been many ways in which online education has been applied in CTE. Online CTE has been used in conjunction with industry internships to allow students to access CTE courses while remaining at the feeder school, in conjunction with postsecondary options, and for online job shadowing (Association for Career and Technical Education, 2010). Online CTE has been effectively used to increase CTE enrollment, alleviate scheduling issues, and create additional learning time (Association for Career and Technical Education, 2010). Auburn Career Center in Ohio reported

positive results with online CTE including: assisting absent students, increasing student test review choices, increased access to materials for remedial students, assisting substitute teachers, increasing differentiated instruction options, and increasing instructional lesson choices (Association for Career and Technical Education, 2010). Video modeling vocational training was discovered to be an effective way of preparing students with Autism Spectrum Disorders for employment (Allen et al., 2010). Online CTE at the post-secondary level was found to have no statistical difference in academic achievement compared to traditional post-secondary education (Benson et al., 2005). Online CTE has also been implemented at the Francis Tuttle Technology Center in Oklahoma to support students who are employed during traditional CTE hours (Bogner & Cady, 2010).

Analysis of Identified Positive Experiences with Online Secondary Education

Secondary Online education has been established as a viable method of academic instruction with research finding students achieve equal or better academic results with online instruction. Hybrid learning environments, an online class that has a dedicated time and place, have been reported as beneficial to secondary online students. It has also been reported that secondary CTE is already using online classes to enhance instruction. This section is important to this study because it investigates a hybrid environment in use by a CTE center. Additionally, it reports positive experiences traditional students reported with online classes providing information critical for interview question development.

Identified Negative Experiences with Online Secondary Education

Student Views

There have also been negative experiences with online instruction reported in the literature. For example, students taking hybrid classes disliked the lack of flexibility the face-to-face classes provided. They also disliked technology issues encountered with the hybrid environment (El Mansour & Mupinga, 2007). Students participating in entirely online classes also complained about technology problems and they reported they felt isolated in the online environment (El Mansour & Mupinga, 2007). Other students did not report feeling isolated in the online environment (O'Dwyer & Klieman, 2007a). Students identified negative experiences completing online assignments on time and getting used to the online environment itself (O'Dwyer & Klieman, 2007a). Online students are not as confident in their academic ability as traditional students (O'Dwyer & Klieman, 2007a). Secondary students reported the online environment was not conducive to social interaction and even viewed their online teacher as a nonessential participant in their learning (Journell, 2010). Secondary student views of their own individual goal orientation and self-efficacy declined after completing an online post-secondary course (Matuga, 2009). Grade 8 students participating in an online Spanish class in West Virginia reported their online class did not allow enough student oral practice, was paced too fast, did not allow relationship building with both peers and teachers, and frustrating online feedback (Rockman, 2007).

Access Issues

Online secondary education raises many negative connotations because of lack of access issues. There is a worldwide digital divide between students who have Internet access both at school and at home and students who do not (Barbour et al., 2011). Implementation of online secondary education has been found to increase inequalities between urban and rural students because of access issues and limited online teacher professional development (Akhtar, Munshi, & Ud Din, 2010). Another factor that increases inequities is the age and experience of teachers (Panizzon, Westwell, & Elliot, 2010). Online K-12 education is currently available in the cities of all developed countries, and many countries were upgrading their Internet infrastructure to increase access (Barbour, et al., 2011). For example, Turkey limits K-12 online education to text-based delivery because of infrastructure issues (Barbour, et al., 2011). Ohio's Tri County Career Center reported that a negative aspect of adopting an online portfolio as a senior project requirement was that students had inconsistent home Internet access (Haskell & Haskell, 2008). One online at-risk student taking credit recovery classes reported the Internet access at home was sufficient; however access through an outdated computer proved insufficient to process the online content (Barbour & Siko, 2012). Mulcahy & Barbour (2010) reported Canadian rural students were not receiving the same quality of instruction through a combination of traditional and online classes as Canadian urban students. O'Dwyer et al. (2007) found students enrolled in an online Algebra class in Louisiana reported being less satisfied with their instruction online compared to a traditional face-to-face class. Participants also perceived less confidence in their Algebra

skills than traditional secondary students even though the online students achieved higher levels of academic success than the traditional face-to-face students.

Population Issues

There are issues regarding the population current online secondary education serves. Kerr (2011) suggested that secondary online students should be both individually motivated and able to monitor themselves intrinsically to succeed academically in online classes. Murphey and Rodriguez-Manzanares (2009a) found the motivation of secondary online students was a key indicator of online academic success. Rockman (2007) reported that research in K-12 online education frequently studies students screened before enrollment for such qualifications as “student grades, work ethic, motivation, and attendance” (p. 15). In practice online learning for K-12 students does not include such prerequisites. Barbour et al. (2011) reported that worldwide, K-12 online education is mainly being used for credit recovery, remediation, and cost effectiveness by students who could not attend traditional classes because of illness, being incarcerated, physical disabilities, and athletics. China uses K-12 online education for tutoring, and the United Kingdom uses online K-12 education to alleviate scheduling issues for students who are not able to attend traditional face-to-face classes (Barbour et al., 2011). In Canada, online secondary education has been adopted as a cost effective measure to offer additional classes to rural students (Barbour & Mulcahy, 2008). Secondary students who are at-risk use online secondary education for credit recovery (Barbour & Siko, 2012). Deniz (2010) indicated that Turkish students between 16 and 24 years old who spend more than 26 hours a week on the Internet reported being lonelier than comparable students who spent

less than 26 hours a week on the Internet. Müller (2010) found students who are on an individualized education plan (IEPs) are enrolling in both secondary and elementary online education in the United States. Unfortunately, research has shown that secondary students who have an Individualized Education Plan (IEP) performed lower academically when enrolled in online classes compared to traditional face-to-face classes (Feng & Cavanaugh, 2011). Thompson et al. (2012) discovered that online schools have a higher population of students identified as Children with Special Health Care Needs (CSHCN) than traditional face-to-face schools. CSHCN students were found to do poorly in online K-12 schools when compared to traditional face-to-face K-12 education (Thompson et al., 2012). International secondary schools reported using online classes to increase student options and were more apt to use online classes when they had difficulty attracting and maintaining quality face-to-face instructors (Fischer, 2009). Journell (2010) described online secondary students as students who put forth minimal effort in their learning and completed academic tasks as quickly as possible. Palmer and Grant (2007) identified CTE secondary students in Michigan as students who received lower grades, come from lower income households, and lived more frequently in non-traditional households compared to non-CTE Michigan secondary students. Thompson et al. (2012) found students whose parents have at least a bachelor's degree perform better at online K-12 schools than students whose parents do not.

Teacher Professional Development Issues

Many of the problems reported with online secondary education involve a lack of quality online teacher preparation and online specific professional development.

Worldwide, online secondary education initiatives appear to ignore online teacher professional development and focus solely on both the access issue and the content (Barbour et al., 2011). For example, Finland enacted a national online initiative that requires no additional training for online teachers (Barbour et al., 2011). The United Kingdom also has no additional certification for teaching online K-12 (Barbour et al., 2011). Teacher preparation programs need to include training in both online instruction and online design to ensure quality online instruction (De Austini, 2011; Journell, 2010). Properly designed K-12 online classes are critical to the academic success of the students enrolled in them (Patrick & Powell, 2009). Additionally, quality online class design is more dependent on adequate preparation and planning than on the available technologies utilized (De Austini, 2011). Wesch (2008) reported that technology integration in online courses did not lead to subject matter relevance. Future online teacher instruction should prepare teachers to be flexible and adapt existing online lessons to fit the individual needs of secondary students (DiPietro, 2010). DiPietro (2010) also suggested establishing common online teaching credentials to ensure quality online secondary instruction. Students wanted less online assessments and more online presentations in their online classes (Moore Gray & Tollison, 2007). Additionally, students revealed their most used online tool was the online grade book (Moore Gray & Tollison, 2007).

Haskell & Haskell (2008) reported that the lack of technology experience of the staff was a challenge when they adopted an online portfolio as part of a senior project. This challenge was reduced by providing both professional development and a laptop to each staff member (Haskell & Haskell, 2008). Secondary students completing an online

history class concluded that exceptional secondary traditional teachers do not necessarily become exceptional online secondary teachers without additional professional development (Journell, 2010). Traditional K-12 teachers converting to online K-12 teachers have to develop and incorporate new methods of teacher student communication (Lowes, 2005). Additionally, teachers who received their teaching education before 2000 had to adapt their teaching practices for converting to online teaching more than teachers who had graduated after 2000 (Lowes, 2005).

Design Issues

There have been many negative experiences resulting from poor designs of online secondary classes. Barbour & Siko (2012) found online secondary classes did not motivate at-risk students to learn, but merely to complete academic tasks quickly and with the least amount of effort. They recommended online secondary classes need to be designed specifically for the at-risk population. Online post-secondary CTE classes reported a high rate of non-completion of the class (Benson et al., 2005). Bogner and Cady (2010) discussed a four step to assist secondary CTE teachers switching traditional to online CTE classes. The steps include: complying with the career cluster program, recording a diary of daily activities, creating self-contained packet lessons, and uploading the class online. De Agostini (2011) presented a different model that assists secondary teachers online course development proposing online classes should include: a clear course structure, student-centered design, a gradual knowledge feed, context oriented, multi-source evaluations, and cooperative work. These negative experiences need to be investigated to reduce their frequency in the future.

Analysis of Identified Negative Experiences with Online Secondary Education

Identifying negative secondary student online experiences and access issues guided the development of the study from the creation of the interview questions, to providing insight as to what to look for during observations. The disconnection between the population identified as successful in online secondary courses and their identified traits and identified secondary CTE traits provided the need for this study. Design issues with secondary online classes also impact the scope of this study and helped form interview questions and identified focus areas for observation.

Chapter Summary

Chapter 2 established the value of secondary CTE as well as investigated both the positive and negative experiences participants had with online secondary education. Secondary education in the U.S. includes CTE (Bragg, 2007; Drage, 2009). Online classes are equally successful educating secondary students as traditional classes (O'Dwyer et al., 2007; Rockman, 2007). A hybrid classroom environment improves secondary student success (Moore Grey & Tollison, 2007). Additional factors in secondary online course success include providing students with a dedicated space, time, and adequate technology (Kerr, 2011). Online secondary students reported feeling isolated, rushed to meet deadlines, perceived their academic ability lower than traditional students, and experienced negative experiences with technology. Secondary CTE students are participating in online classes designed for traditional secondary students that ignore secondary CTE student traits, strengths, and weaknesses. This study identified challenges and techniques current secondary CTE students experience in online classes.

Chapter 3: Research Method

The National Association of State Directors of Career Technical Education Consortium (2014b) estimated that 14 million students are enrolled in career technical education (CTE) in the United States. Alternately, Thompson et al. (2012) reported that over a million students in the United States were enrolled in CTE. Current online secondary classes are designed for traditional secondary students, and researchers have identified learning traits that indicate secondary student success with online classes (Brenner, 2007; Picciano & Seaman, 2007; Roblyer et al., 2008; Ronsisvalle & Watkins, 2005; Wallace, 2009). A disconnect exists between the identified skill set and the secondary CTE student skill set. The purpose of this qualitative case study with multiple embedded units of analysis was to describe positive and negative experiences with online learning for secondary CTE students. Data were gathered through individual interviews, observations, and focus group interviews. This chapter presents the research questions, methodology, research design and rationale, data collection, sampling strategy, and analysis techniques.

Research Design and Rationale

In my review of the literature, many traits of successful secondary online students were identified. For example, Picciano and Seaman (2007) identified self-discipline as an essential skill necessary for online course success. Roblyer et al. (2008) suggested successful online success traits include prior academic grades, individual student confidence, and the presence of in class monitoring. Many secondary CTE students who do not exhibit these traits are currently being enrolled in online classes. I expected that

the results of this case study with multiple embedded units of analysis would indicate skills career technical students need to succeed in hybrid online classes.

This study was a first step in investigating career technical students' views of online classes. This study provided initial research investigating secondary career technical student views of current online classes. CTE students are currently enrolling in online classes, and research needs to be done to identify the best practices to help this unique population not only successfully complete their courses, but also learn and retain academic content that can be applied to problems faced in the future. Results can be used to assist the instructional design of future online courses for career technical students. The research questions in this study were designed to acquire knowledge about secondary CTE students' views and experiences regarding online classes. I hoped that the results could be used to identify best practices implemented by secondary online CTE students to achieve academic success in online classes designed for a traditional secondary population.

Identify the Research Tradition

Merriam (1998) stated that the qualitative case study is used “for what it can reveal about phenomenon, knowledge we would not otherwise have access to” (p. 33). Yin (2012) suggested that qualitative case study research investigates a case in multiple ways looking at conditions through a variety of data. This study included a qualitative case study design with embedded units of analysis. Yin (2009) explained that case studies are used to “contribute to our knowledge of individual, group, organizational, social,

political, and related phenomena” (p. 4). Miles and Huberman (1994) defined a case study as “a phenomenon of some sort occurring in a bounded context” (p. 25). Yin (2009) suggested that a single case study with embedded units of analysis is appropriate when investigating a single organization that has multiple subunits. The purpose of this qualitative case study with embedded units of analysis was to describe positive and negative experiences of secondary CTE students in online courses. The embedded units were three student samples from each of the four different clusters of current CTE students enrolled in online classes at a career technical center. The four career clusters were as follows:

- environment and agriculture (automotive technology, automotive collision repair, gas & diesel engine systems, landscape & turfgrass management, small animal care, and alternative energy technology);
- arts, business, and health (digital video production, interactive media, medical & legal office management, geographical information system, dental assistant, exercise science/sports health care, and medical technologies);
- construction/manufacturing (construction carpentry, computer aided design, welding, construction electricity, construction masonry, construction remodeling, machine trades, and heating & air conditioning technology);
- human services (floral design/greenhouse management, early childhood education, teaching professions, culinary arts, cosmetology, hair design, fire/EMT, and criminal justice).

Students spend half of their day in a lab with a specific industry instructor. No lab teachers teach more than one career program. The other half of the day is spent with other CTE students in academic classes taught by highly qualified academic-specific teachers. All online courses at the site are academic courses designed off site by the Pearson Publishing Company. No career-specific online courses are offered. Online courses are accepted by the state as academic credit for high school graduation. I hypothesized that students who chose to study welding in the construction/manufacturing cluster would have very different skill sets and learning styles than students who chose to study geographical information systems in the arts, business, and health cluster. The four embedded units were designed to ensure an accurate sampling of secondary CTE students.

Rationale for the Chosen Tradition

Yin (2009) explained that one use of case studies is to investigate current events. Stake (1995) identified the exploration of an innovative program in a school as an example of a case suitable for case study. Stake explained that case study research allows researchers to enhance understanding through deep probing. Yin (2009) concurred stating that the strengths of case study include the “richness of the phenomenon” and the “extensiveness of the real life context” (p. 2). Stake (1995) suggested that case study research is ideal for research in education.

Maxwell (2005) stressed the importance of a well-designed study in qualitative research. Qualitative research design must also be flexible enough to allow researchers to adjust to fit the needs of the study. My study was a case study with embedded units of

analysis design. In planning this study, I considered other design options including survey research, historical research, phenomenology, ethnography, and holistic case study. Yin (2009) advised that the method of the study should be driven by the research question, control of participant behavior, and time focus.

Initially, I considered phenomenology as a design option. Creswell (2007) explained that phenomenological research addresses a common experience of a group in detail. The common experience in this study would be the online class in a hybrid environment. After careful consideration, phenomenology was eliminated because the participants were taking different online classes in a hybrid environment that may have changed depending on what time the participant was there.

Ethnography was also considered. Creswell (2003) defined ethnography as research that addresses a population over an extended period of time. I investigated secondary CTE students' experiences with online classes. Ethnography was eliminated because the research questions addressed an event (online learning) and not secondary CTE students' entire CTE experience.

A holistic case study was also considered for this study. Creswell (2003) defined a case study as research that investigates an event in detail. My event was the online/hybrid experience of secondary CTE students. Yin (2009) explained that a holistic case study is used to investigate a case globally. Ultimately, my case study design was amended to a case study with multiple embedded units of analysis because participants from four different career clusters were investigated. This design choice was necessary because the four career clusters may attract different types of learners. By including all

clusters, the results of this study provided a better representation of secondary CTE student experiences.

Creswell (2003) emphasized the importance of matching the research method with the research question. Yin (2009) suggested that survey research be used to answer predictive research questions investigating “how many” or “how much.” Yin (2012) added that survey research is appropriate when investigating how frequently an event happens. The research questions of this study were exploratory in nature as opposed to predictive, so survey research was not deemed appropriate. Yin (2009) explained that historical studies address phenomena occurring in the past. Patten (2002) added that historical research is appropriate when understanding a phenomenon of past events. Historical research was not selected because this study investigated a contemporary event. Additionally, historical research was eliminated because this study addressed an emerging instructional method (hybrid/online learning), and a historical lens would not assist in answering the research questions.

Ultimately, a case study with multiple embedded units of analysis was chosen as the study design. Yin (2012) explained that case study research is appropriate when investigating descriptive questions such as “what is happening” (p. 5). The research questions in the following section address what is happening in an online/hybrid secondary career technical classroom.

Research Questions

The central research question that guided this study was as follows:

1. What are secondary CTE students' views of their experiences with current online classes?

Additional questions that guided the study included:

2. What online instructional design features do CTE students identify that help them succeed in online courses?
3. What online instructional design features can be identified that do not assist online CTE students in online courses?
4. What features in an enclosed hybrid environment assist secondary CTE students?

Participant Selection

Population

I investigated current secondary CTE students' views of positive and negative features of online classes. The population for this study was 12 CTE students enrolled in a hybrid online class at a career technical center in Ohio. In addition, the paraprofessional in charge of the hybrid environment was included in the study.

Sampling Strategy

The sampling strategy was stratified purposeful sampling to allow for maximum variation. Patton (2002) explained that stratified purposeful sampling helps "illustrate characteristics of particular subgroups of interest" (p. 244). The 12 students were chosen to represent the four different career clusters offered at the site. All four career clusters were included in the sample to ensure the best representation of secondary CTE students' experiences. The 12 students were stratified to represent the four different clusters

already used at the site. Career programs are divided into four clusters within the career technical center so that they are grouped with other career programs that share similar characteristics. The programs in the clusters share a common administrative supervisor and are involved in the same career technical student organizations (CTSO). CTSOs group similar career programs at the regional, state, and national levels to compete in competitions, provide student leadership opportunities, and involve students in their communities through service learning activities. I hypothesized that each of these clusters may attract different styles of learners, so the stratified purposeful sample ensured that all clusters were represented. Three students per cluster were included to ensure study completion in case of participant withdrawal.

Criteria for Participant Selection

To participate in this study, participants needed to satisfy the following criteria:

- enrolled in current online classes at the site,
- enrolled in one of the four clusters included in the study,
- not enrolled in the researcher's classes,
- be over 18 years of age, and
- provide written consent.

The site serves students from ages 14 to 23; however, the minimum participation age of 18 was selected so participants would be more mature. In addition, the paraprofessional was included in the study to better understand and describe the hybrid classroom environment.

How Participants Met Criteria

Each career cluster at the site has its own supervisor. Site supervisors confirmed the enrollment of participants in online classes and the enrollment in different clusters. After student participants were identified by cluster, participants were randomly selected for participation in the study. I collected participant permission slips (see Appendix F). I ensured that participants were not enrolled in my classes. I also collected the participant permission form before interviewing and observing the paraprofessional (see Appendix E).

Number of Participants and Rationale for Number

The population of this study was 12 secondary career technical students enrolled in a hybrid online class at a career technical center in Ohio and the paraprofessional in charge of the hybrid classroom. The site offers 31 career programs divided into four clusters: environment & agriculture; art, business, and health; construction/manufacturing; and human services. The different clusters attract students with slightly different learning styles. The National Association of State Directors of Career Technical Education Consortium (2014a) identified the following characteristics for each of the different career clusters:

- environment and agriculture characteristics include self-reliant, nature lover, physically active, planner, and creative problem solver.
- art, business, and health characteristics include creative and imaginative, good communicator, good vocabulary, curious about new technology, relate well to feelings and thoughts of others, determined/tenacious, organized, practical and

logical, patient, tactful, responsible, trustworthy, orderly, self-confident, logical, methodical or efficient, compassionate and caring, good at following directions, conscientious and careful, patient, good listener, logical/ analytical thinker, see details in the big picture, persistent, good concentration skills, precise and accurate, enthusiastic, competitive, creative, self-motivated, and persuasive.

- construction/manufacturing characteristics include curious, good at following directions, pay attention to detail, good at visualizing possibilities, patient and persistent, practical, observant, physically active, step-by-step thinker, and coordinated.
- human services characteristics include friendly, decision maker, helpful, innovative/inquisitive, good listener, good communicator, competitive, service-minded, well-organized, problem solver, tactful, self-motivated, works well with others, outgoing, slow to anger, good communicator/good listener, caring, non-materialistic, intuitive and logical, non-judgmental, adventurous, dependable, community-minded, decisive, and optimistic.

Three participants per cluster ensured a representation of all secondary CTE students. Participant dropout was not an issue because there were no participants who dropped out of the study.

Participant Identification, Contact, and Recruitment

Creswell (2009) explained the importance of gatekeepers or people who control access to qualitative research. This site included both access and online classes for credit recovery. The gatekeeper was the school superintendent. The superintendent received a

45-minute informational description of the study through a face-to-face meeting which also established a participant selection plan and participant time requirements. This site had a reputation for promoting secondary CTE education and being a secondary CTE innovator. The superintendent approved participation in the study, which may indirectly benefit the site by providing data relevant to all secondary CTE students involved in online education.

The site serves 1429 secondary students from sixteen different school districts that range from rural to suburban. Students emerge themselves in one of 31 career programs and a sophomore career exploration program for half a school day and study traditional high school courses the other half of the day. For example, students study welding for half of their day and complete required academics the other half. Post-secondary dual credit enrollment was 54%. Additionally, 100% of the site teachers were highly qualified in their subject matter. 38.08% of the students received free, or reduced lunches and 33.87% of the students received special education services. The attendance rate of the site was 92%. (Penta Career Center, 2013).

Potential participants included all secondary CTE students enrolled in online classes over the age of 18. The site had 45-minutes of professional development built into staff workdays every day after school. During this time, a presentation on the purpose of the study and participant identification was given to all four CTE supervisors. I worked with the supervisors identifying the potential participants that adhered to the sample guidelines. Potential participants were identified by cluster and then they were randomly selected to fill the established purposeful sample. The site schedule included two 45-

minute student success periods every week for student remediation and enrichment. I contacted potential participants during their student success time and informed them of the study through an informational session. The objective of the informational session was to educate potential participants on the purpose of the study, participant involvement and provide assent forms. Using student success time ensured that student participants were not missing academic instruction time. I acquired participant permission through signed permission slips (see Appendix F). I informed the paraprofessional of the study through an informational session during the 45-minute after school professional development time. The objective of the informational session was to educate the paraprofessional on the purpose of the study, participant involvement and provide an assent form. The site secretary collected all participant assent forms in a plain envelope.

The Relationship between Saturation and Sample Size

Patton (2002) recommended using a smaller sample size for research questions that require information-rich data. Miles and Huberman (1994) stated that qualitative samples are usually small and purposeful and recommended that qualitative sample strategies include both boundaries and a framework. Creswell (2007) suggested smaller sample sizes for qualitative studies because the purpose of qualitative research is to learn about phenomena in great detail. Maxwell (2005) stated that random sampling is not suggested for small sample sizes and recommended purposeful sampling. Miles and Huberman (1994) warned that sample sizes over 15 could become overwhelming and recommended 15 as the maximum sample size. The sample size of this study was 12 because it allowed three participants to represent each of the four career clusters,

allowing for both potential non-completion and a representation of the entire CTE population.

Researcher's Role

Role of the Researcher

I conducted all interviews, transcribed all interviews, performed the observations, and coded the interviews. I aligned all transcriptions with digital recordings and field notes for accuracy. Creswell (2008) explained that “peer debriefing” and using an “external auditor” are two methods of strengthening validity. A researcher who was familiar with the study acted as a peer reviewer during this study. A researcher who was not familiar with the study served as an external auditor at the conclusion of the study.

Personal and Professional Relationships

The researcher was employed as a traditional teacher at the site; however, no participant of the study was in the researcher's classes. The hybrid online program was taught by a paraprofessional.

Researcher Biases/ Power Relationships

Patton (2002) defined power as a social construct that influences perspective in its favor. Even though the researcher worked at the CTE site, all data were reported as discovered without bias by using two external peer reviewers, a researcher who was familiar with the study and a researcher who was not familiar with the study. Also, the study was vetted through Walden University's dissertation committee consisting of a committee chair, a methodologist, and a University Research Reviewer (URR). Individual interview data collection utilized the first individual interview questions (see

Appendix A) and the second individual interview questions (see Appendix B). Focus group interview data collection used the focus group interview questions (see Appendix C). The paraprofessional interview data collection was acquired using the paraprofessional interview questions (see Appendix D). The student observation data were collected using the student observation schedule (see Appendix G). The paraprofessional observation data were collected using the paraprofessional observation schedule (see Appendix H).

Ethical Issues

research was conducted using the following ethical precautions to protect the participants:

- IRB approval was obtained before research was conducted.
- participant pseudonyms were used to protect participant identity.
- research was conducted with respect and participants were not coerced or intimidated. This was accomplished by informing participants of their level of involvement and acquiring their consent before the study began and reminding participants that they could withdraw their participation in the study at any time without penalty before each interview and observation.
- no part of this study was shared in any form with other teachers or administrators at the site until the final results are approved.
- maximum care was used to protect the identities of the participants. Participants were assigned aliases that were used throughout the study. The researcher was the

only one who had access to the key. The key was stored in a password protected encrypted file. Additionally, data were entered into the password protected database, Dedoose. The researcher was the only one with the password.

- participants were reminded at each stage of data collection that they could withdraw at any time.
- no incentives were used in this study.

Instrumentation

Individual Interview

The data collection instruments used in this study included individual interviews, observations, and small group interviews. Yin (2009) stated the interview was one of the most powerful methods of obtaining data in case studies and added that interviews allow researchers to investigate both facts and participant opinions. Yin concluded that interviews are relevant to qualitative case study research because they allow researchers to study “human affairs or behavioral events” (p. 108). Both the first individual interview questions (see Appendix A) and the second individual interview questions (see Appendix B) examined student views, experiences, and strategies that helped with current online instruction. I developed the research questions. Patton (2002) identified three types of qualitative interview approaches; “the informal conversational interview”, “the general interview guide approach”, and “the standardized open-ended interview” (p. 342). A standardized open-interview design was chosen for this study because it provided a basic framework for interview questions that allows researchers to adapt to responses during the interview (Patton, 2002). Student participants were individually interviewed twice

during their online course, once during the third week, and once during the sixth week of their nine-week quarter. The site was on a semester-long block schedule and used online courses for credit recovery, so only students who are unsuccessful in traditional classes are enrolled in online classes. These classes typically were completed in a nine-week quarter. Data were collected both at the beginning of the participant's online experience and at the conclusion of the participant's online learning experience. Individual interviews took place during student success time so that participants did not miss any academic instruction. Additionally, the paraprofessional was interviewed to gain more knowledge of how the hybrid classroom worked. The researcher also designed the paraprofessional interview questions (see Appendix D). The paraprofessional was interviewed once during the study, and the interview took place during the paraprofessional's professional development time.

Focus Group Interview

The focus group interview occurred during the last week of the study. Patton (2002) defined a focus group as 6-10 people interviewed on a common topic and suggested that focus group interviews enhance research by exposing participant interactions and identifying common themes. I developed the focus group interview questions based on the findings of the literature, the research questions, and standardized open-interview design (see Appendix C). The Focus group interview occurred during participant student success time so that participants did not miss any new instruction.

Direct Observation

Direct observations collected student participant data twice; once during the fourth week of the participants' nine-week class, and once during the seventh week of the participants' nine-week class. Direct observations also collected paraprofessional data twice; once during the fourth week of the participants' nine-week class, and once during the seventh week of the participants' nine-week class. Yin (2009) stated that direct observations are ideal for case studies that study current research and explained that observational evidence provides an additional perspective to the topic investigated. Yin also suggested that direct observation was an excellent way to collect data about a new technology, such as online learning. I collected all observation data and included a description of the hybrid environment since online student learners at this CTE site learn in a hybrid setting; an online classroom with a dedicated time, location, and paraprofessional mentor. Yin (2009) defined participant-observation as observations done while the researcher is involved in completing the same experience as the participants. Since I was not a participant in the online class, this study did not use participant-observation to collect data. Observations were conducted using the student observation schedule (see Appendix G) and the paraprofessional observation schedule (see Appendix H).

Source of Data Collection Instruments

I developed the instrument used in the first individual interview, the second individual interview, the focus group interview, and the paraprofessional interview based on the conclusions reported in the literature and the study research questions. The First

Individual Interview Guide (see Appendix A), the Second Individual Interview Guide (see Appendix B), and the Paraprofessional Interview Guide (see Appendix D) directed the individual interviews. The Focus Group Interview Guide (see Appendix C) directed the focus interview. I also developed The Student Observation Schedule (Appendix G) and the Paraprofessional Observation Schedule (see Appendix H) based on the conclusions reported in the literature and the study research questions.

Document Discussion

Creswell (2009) explained that one method of documentation is for participants to keep a journal. Since journaling would require additional participant time and distraction from their class, document observation was not used in this study. The study site licensed their online courses from an outside company, and I did not have access to course materials. Instead, interviews collected student views of their online course materials. Observations also documented online course content and activities. A paraprofessional who assists the students administered the online classes. Interviews with the paraprofessional described both the content of the online classes and the nature of the hybrid environment.

Dowling and Brown (2010) recommended the use of an observation schedule to guide observation data collection. Although preexisting observation schedules exist, they recommended observation schedules should be designed by the researcher to match both the research questions and the theoretical perspective of the study. Since this study observed a hybrid classroom environment, traditional observation schedules that only measure teacher and social interaction would not gather the correct data. The student

observation schedule (see Appendix G) observed student online activity as well as their interaction with the paraprofessional. The paraprofessional observation schedule (see Appendix H) observed the paraprofessional's interaction with students and activities in the hybrid classroom. The literature suggested secondary online classes rely on reading and writing activities (Brenner, 2007; Picciano & Seaman, 2007; Roblyer et al., 2008; Ronsisvalle & Watkins, 2005; Wallace, 2009) while secondary CTE students prefer to learn through hands-on activities (Karmel, 2010; Vorhaus, 2010). The observation schedules allowed categorization of these activities and the ability to record their frequency. Since hybrid environments can vary in implementation, it was critical to explain how the paraprofessional and students interact. Each observation lasted for 45 minutes, the length of a hybrid online class. Data were collected on the schedule every three minutes which provided 15 snapshots for each observation.

Sufficiency of Instruments to Answer Questions

Yin (2009) emphasized the importance of asking good questions when interviewing in case studies. Maxwell (2005) revealed that the research questions ask what you are hoping to discover, and the interview questions are how you obtain the data. I designed all sets of interview questions and both the observation schedules to align with the research questions of the study. Both the individual interviews and the focus group interviews used standardized open-interview design that allowed the addition of probing questions to participant responses to obtain additional pertinent information. Data were collected using two individual interviews, one small group interview, and two observations. Analysis of the different data results checked for consistency.

Basis for Instrument Development

I developed both the individual interview questions and the small group interview questions to answer the research questions. For example, the individual interview question, “What strategies do you use to help you with the written material found in your online course?” corresponds to the research question, “How do online secondary CTE students adapt to current online secondary classes designed for traditional secondary students?” The individual interview question, “How does the hybrid environment assist you in your online class?” corresponds to the research question, “How does the enclosed hybrid environment assist online secondary CTE student success?” Alignment of the observation schedules used both the research questions and the findings in the literature.

Establishment of Content Validity

Patton (2002) suggested that in qualitative research, “the researcher is the instrument” (p. 14). Therefore, qualitative research validity is determined by both case selection and researcher ability. I completed a quantitative research study and doctoral coursework on case study research. Seidman (2006) proposed checking participant consistency over multiple interviews establishes validity. This study incorporated two individual interviews, one small group interview, and two observations. Analysis of all participant responses checked for consistency across instruments. Both inconsistencies and consistencies were analyzed and reported.

Data Collection Procedure

Individual Interviews

The timeline for this research study was one nine-week quarter. I collected data during two 20-minute individual interviews, one at the beginning and one in the middle of the participant's course. This practice collected participant expectations of the class before the class starts, participant experiences during the course, and participant reflections of the course. I took notes, and the interviews were recorded using a digital recorder. Interviews took place in private meeting rooms in the site library. Interviews occurred during the site scheduled student success periods so that student participants did not miss academic instruction time.

Small Group Interview

Participants also participated in a small group interview at the completion of the class. Four participants participated in the focus group interview, which occurred in the last three weeks of school. Many participants were unable to take part in the focus group interview because of graduation activities. The four participants included Kelly, Chelsea, Luke, and Levi. I facilitated the small group interview using the focus group interview questions (see Appendix C). The researcher took notes, and the interview was recorded using a digital recorder. The small group interview took place in one of the private enclosed meeting rooms at the site library.

Observation

Maxwell (2005) suggested that direct observations lead to a quality understanding of participant experiences and is also frequently used in conjunction with interviews. The

hybrid classroom was observed four times during the study; twice studying student participants and twice studying the paraprofessional. I conducted the observations as a solo overt onlooker outsider observing holistically. I also relied on note taking to record the observations since the presence of a video camera would change the setting and be difficult to get approved.

Explain how Participants Exit the Study

Participants could leave the study at any time without consequences. Participation in the study was voluntary and had no effect on grades. The initial study presentations explained the voluntary nature of the study to all participants. Participants were asked before each data collection interview if they wished to continue or exit the study. No participants chose to leave the study before completion.

Follow-Up Procedures

Participants received a copy of the results after study completion. Most of the data from this study were collected and stored and protected digitally in a password protected online management system Dedoose. A locked file cabinet protects all written documents about the study such as researcher notes and participant permission forms. After five years, documentation will be destroyed. The use of participant pseudonyms ensured participant confidentiality and using both online encryption and a locked file cabinet protected participant identities.

Manner of Treatment of Discrepant Cases

I assumed that CTE students have unique needs regarding online learning. Even though study design used this assumption, all data collected in this study was analyzed and reported.

Data Analysis Plan

Dedoose, a password-restricted online qualitative analysis program, was used to help analyze the data. I transcribed all individual interviews and uploaded both the raw audio and the transcriptions into Dedoose. I also collected all written notes and observations during the interview and transcribed and entered them into Dedoose for analysis. Maxwell (2005) defined the process of fracturing as splitting the data into segments and rearranging the segments into categories that are similar. The interview data were fractured it into categories of similar topics. Dedoose assisted organization of the data into codes and reports including excerpts of similar themes. I also transcribed the focus group interview recordings and researcher notes and uploaded them into Dedoose. The focus group interview data were also coded and fractured into categories and analyzed in the same manner as the individual interviews. I also uploaded all observation notes into Dedoose and analyzed them by coding and fracturing. I was the only person coding and transcribing the data, which ensured consistency. Having multiple coders and transcribers would have increased the possibility of coding error. This study was designed to integrate these different methods of data collection to allow for triangulation.

Issues of Trustworthiness

Internal Validity

Yin (2012) identified four types of validity in case studies; construct validity, internal validity, external validity, and reliability. Yin (2009) defined construct validity as the failure to limit subjective influences when collecting data. Yin suggested eliminating this threat by using multiple types of data, creating a chain of evidence, and having participants review transcripts. This study collected data through individual interviews, group interviews, and observations using both recordings and field note observations. Yin (2009) suggested using pattern matching, a technique of comparing the pattern of the data with a predicted pattern, as a method of eliminating internal validity. This study hypothesized that CTE students who prefer activities and hands-on lessons to written and lecture-based activities would have to develop strategies to succeed in online classes designed for traditional secondary students. The pattern identified in the literature was that CTE students struggle with written text and data. Collected data were compared to this pattern to investigate if the data matches the pattern.

External Validity

Merriam (1998) explained that external validity exists when study results apply to other populations. Yin (2009) suggested that replicating the study through multiple case study design reduces external validity problems. This study utilized qualitative case study with multiple embedded units of analysis by investigating the experiences of student participants from four different career clusters with current online education. A different career specific instructor teaches each career program. The clusters share a common

supervisor. Career clusters are grouped to include similar career programs and clusters programs share unique CTE student organizations. The career instruction is career specific and lasts for half of a students' day. During the other half of the day, CTE students are combined in academic classes taught by highly qualified academic instructors. Online classes are offered for academic classes only and are monitored by a paraprofessional. All CTE students take the same academic classes in the same hybrid environment. Yin (2009) explained that external validity is the ability of study results to be generalized to a different population. This study investigated CTE participants representing all four different career clusters to be useful to other secondary CTE student populations. Students choosing to study Criminal Justice exhibit more discipline, embedded in their CTE content standards than students who enroll in landscaping which does not include discipline in their CTE content standards. Creswell (2008) described using deep, clear, rich description to show validity. This study provided deep, clear, rich description.

Reliability

Reliability is the ability of other researchers to replicate a study and get the same results (Yin, 2009). Merriam (1998) suggested that reliability problems happen through human error. Merriam recommended three steps to avoid reliability issues. Merriam's first step is triangulation, which requires the use of multiple data sources. This study included individual interviews, small group interviews, and observations for triangulation. Observations collected direct data on the types of learning activities participants engaged in online. Observations also collected data on the role of the

paraprofessional in the participant's education. Merriam's second step is an explanation of the researcher's position where the researcher reveals all assumptions in the study write-up. Merriam's third step is an audit trail, which allows other researchers to follow the exact steps taken in the study. Yin (2009) also suggested creating a case study database. This study used Dedoose to create a case study database. This database included all of the collected data to record a chain of evidence. Yin (2009) explained that a quality chain of evidence would allow any external researcher to recreate the study using the database. As recommended by Yin, the database included documentation of where, when, and what time interviews occurred and labeled by name in both the discussion of the data and the conclusions.

Confirmability

Qualitative validity sections should identify threats to validity and the researcher's methods to address these threats (Maxwell, 2005). Maxwell identified two threats to validity. Maxwell's first threat is researcher bias, which happens when researchers choose data to fit preexisting conclusions. All collected data were revealed to check researcher bias including data collected that did not support the hypothesis. The case study database also includes all data. Maxwell's second threat is reactivity, which happens when researchers themselves influence the results. Yin (2009) suggested researchers adhere to case study protocol when reporting research. Yin explained that a case study protocol is a detailed plan of action the researcher adheres to while conducting the study. This study utilized the multiple case study protocol described in Chapter 3.

Additionally, student participants who had a prior relationship with the researcher were excluded from the study before participant selection.

Ethical Procedures

Agreements to Gain Access to Participants

The Walden University Institutional Review Board (IRB), the site superintendent, and all participants gave permission for this study before conducting any research. The IRB approval number was 12-11-14-0157613 and it expired December 10, 2015. Initial contact with potential participants was made in person at the beginning of the nine weeks during the first student success period. Using the student success period did not require participants to miss any academic instruction. The researcher described the study to potential participants. The presentation also included the expectations for participant involvement. At the conclusion of the presentation, permission forms were distributed. All participants were able to exit the study at any time.

Description of the Treatment of Human Participants

Interviews were conducted individually with students twice during their online course and once in a small group at the conclusion of the course. Appendix A contains the first individual interview guide used in the study. Appendix B contains the second individual interview guide. Appendix C contains the focus group interview guide. Appendix F contains the agreement for participation in this study. Permission was acquired from the paraprofessional using the agreement found in Appendix E. Participants were informed of the purpose of the study during the initial presentation provided during student success time. Review of both the study purpose and the option of

removing themselves from the study occurred before each interview and observation. No coercion or incentives of any kind were used to acquire participants or participation for this study. Permission papers were delivered personally to participants. Participants were treated fairly and with respect through all stages of the research. All research was conducted efficiently to minimize disruption of academic activities for participants. Interviews utilized already existing student success periods, which are built into the site schedule twice a week. Participants received observation schedules at the initial presentation. The requirement that participants be at least 18 ensured that participants were mature enough to understand and participate in the study.

Description of Treatment of Data

All data collected in this study was confidential. Although there is always a risk, the researcher used every measure possible to protect participant personal information. Using pseudonyms throughout the study protected participant names. I was the only person with access to the participant's real names. An encrypted file protected pseudonym data. All physical data is in a locked file cabinet and will remain there for five years. Interview data recordings, transcriptions, and qualitative analysis was used to determine the results. Dedoose, a password protected online qualitative database, was used to record and analyze data. The researcher was the only person with the password. Student participants and the paraprofessional provided informed consent. Appendix F includes the informed consent form and Appendix E contains the paraprofessional participant consent form. The Walden University Institutional Review Board (IRB)

approved consent forms. This study adhered to all measures of participant anonymity both during and after the study.

Other Ethical Issues

Participation in the study was voluntary and participants could have removed themselves at any time without consequence. I followed all ethical procedures to protect the rights of the participants and maintain confidentiality. Although I was site employee, no participants were selected if they were in my course or any of my previous courses. I did not reveal any participant data or details of the study with colleagues.

Chapter Summary

Chapter 3 described the methods in this qualitative case study with multiple embedded units of analysis. This case study triangulated data through individual interviews, small group interviews, and observations. The sample size was 12 secondary CTE participants enrolled in online classes at a career center located in the Midwest, and one paraprofessional in charge of the hybrid classroom. The literature stated secondary online CTE students prefer hands-on learning (Karmel, 2010; Vorhaus, 2010). Secondary CTE students are enrolling in online classes designed for traditional secondary students. These online courses are mainly text-based. Pattern matching was used to ensure internal validity. Rich, deep, descriptive detail was provided to ensure external validity. Collected data were coded and fractured using Dedoose for analysis. Participant personal information remained confidential. Data is in a locked cabinet and will continue to be there for five years. I am the only person with access to the data. Chapter 4 describes the results of the study.

Chapter 4: Results

The purpose of this qualitative case study with multiple units of analysis was to describe positive and negative experiences of secondary CTE students in online courses. Secondary education includes online classes. Secondary students who achieve academic success online generally display the following characteristics: self-motivation, reading skills, and writing skills (Brenner, 2007; Picciano & Seaman, 2007; Roblyer et al., 2008; Ronsisvalle & Watkins, 2005; Wallace, 2009). Secondary CTE students learning styles' do not align with the learning styles necessary for online course completion (Karmel, 2010; Vorhaus, 2010). This study addressed secondary CTE students' views of their experiences with current online classes. Data were collected from 12 student participants through individual and focus group interviews and observations. Additionally, data were gathered from the paraprofessional in charge of the hybrid environment through an interview and two observations. This chapter presents the purpose, setting, demographics, data collection, data analysis, trustworthiness, and results of the study.

Research Questions

The central research question that guided this study was as follows:

1. What are secondary CTE students' views of their experiences with current online classes?

Additional questions that guided the study included:

2. What online instructional design features do CTE students identify that help them succeed in online courses?

3. What online instructional design features can be identified that do not assist online CTE students in online courses?
4. What features in an enclosed hybrid environment assist secondary CTE students?

Setting

This study took place at a secondary career technical center in Ohio. The site served 1,429 secondary students from 16 school districts from rural to suburban areas. The site offered 31 career programs that were divided into four career clusters: environment and agriculture; art, business, and health; construction/manufacturing; and human services. Students immerse themselves in one of the career programs for half of the school day and take traditional high school courses the other half of the day. For example, students study welding in a lab or at an industry site for half of their day and complete required academics for graduation the other half of the school day. The site reported that 54% of students were enrolled in postsecondary dual-credit programs. Additionally, 100% of the teachers were highly qualified in their subject matter, 38.08% of the students received free or reduced lunches, and 33.87% of the students had identified special education needs. The attendance rate of the site was 92% (Penta Career Center, 2013, p. 10).

Data collection occurred from January 5, 2015, to April 24, 2015. During this time, the site closed 7 days due to weather. Additionally, the success period used to interview students was removed from the schedule whenever the site experienced a 2-

hour delay, or whenever five or more of the 16 feeder schools were delayed. This led to seven additional success period cancellations. As a result, many of the first individual interviews took place after the participants started their online course. Additionally, the focus group interview was also delayed, and only four of the 12 participants participated due to prom and graduation activities that were also scheduled during the student success period at the end of the year.

The site offered students credit recovery through two different online providers. These providers have been given the pseudonyms Gradnet and Omnipoint. The site has offered Gradnet for multiple years; however, this was the first year Omnipoint was offered. Because Gradnet has been offered for many years, students referred to the hybrid classroom as the Gradnet room. Because Omnipoint was not offered at the site during the planning of this study, no data were collected on whether student participants were working with Gradnet or Omnipoint (see Table 1).

Table 1

Content Provider Pseudonyms

Pseudonym	Description
Gradnet	Offered Multiple Years
Omnipoint	First Year of Implementation

Demographics

The study sample included 12 secondary CTE students enrolled in a hybrid online class at a career center in Ohio, as well as one paraprofessional who managed the hybrid classroom. Participants were all over 18 years of age and were selected through purposeful sampling that included three participants for each of the four career clusters. In the environment and agriculture career cluster, all three participants were enrolled in the small animals program. In the art, business, and health career cluster, two participants were enrolled in the digital video production program, and one participant was enrolled in the dental program. In the construction/manufacturing career cluster, two participants were enrolled in the construction electricity program, and one participant was enrolled in the advanced manufacturing program. In the human services career cluster, one participant was enrolled in the early childhood education program, one participant was enrolled in the cosmetology program, and one participant was enrolled in the criminal justice program. All of the participants were high school seniors except Levi, construction electricity, who deferred graduation to continue career instruction. Nine of the participants were female and three of the participants were male. The programs of the

three male participants were criminal justice, construction electricity, and advanced manufacturing. All participants were given pseudonyms (see Table 2).

Table 2

Participant Pseudonym/ Program/ Cluster

Student Pseudonym	Sex	Program	Cluster
Sandy	F	DVP	Art, Business, and Health
Kelly	F	ECE	Human Services
Dave	M	DVP	Art, Business, and Health
Cheryl	F	Small Animal	Environment & Agriculture
Meagan	F	Dental	Art, Business, and Health
Brittany	F	Cosmetology	Human Services
Justin	M	Construction/Electricity	Construction/Manufacturing
Mark	M	Criminal Justice	Human Services
Chelsea	F	Small Animal	Environment & Agriculture
Kristi	F	Small Animal	Environment & Agriculture
Luke	M	Advanced Manufacturing	Construction/Manufacturing
Levi	F	Construction/Electricity	Construction/Manufacturing

Additionally, the paraprofessional in charge on the hybrid classroom and a traditional math teacher employed at the site were also given pseudonyms (see Table 3).

Table 3

Additional Pseudonyms

Pseudonym	Position
Ms. Rose	Hybrid Classroom Paraprofessional
Mr. Smith	Traditional Math Teacher at the Site

Data Collection

All 12 students participated in the individual first interviews and individual second interviews, and four students participated in the focus group interview. The paraprofessional participated in the paraprofessional interview. Additionally, there were two 45-minute observations of the classroom and two 45-minute observations of the paraprofessional in the classroom. All 12 individual first interviews were conducted during the site's student success period, which occurred twice a week giving students 45 minutes to work on either makeup work or enrichment activities without losing academic instruction time. The individual first interviews were completed between January 5, 2015, and March 13, 2015, and were conducted in a private meeting room located in the media center at the site. The individual first interviews ranged in length from 6 minutes 4 seconds to 11 minutes 57 seconds. The paraprofessional interview took place in the hybrid classroom March 16, 2015, during the paraprofessional's after school professional development period and lasted 10 minutes 50 seconds. The second individual interview

data collection began on April 8, 2015, and concluded on April 23, 2015. All 12 individual second interviews were conducted in a private meeting room at the site located in the media center and ranged in length from 6 minutes 13 seconds to 10 minutes 35 seconds. The focus group interview was conducted in a private meeting room and lasted 22 minutes 19 seconds on April 24, 2015.

Interview data were recorded with a digital recorder, and I took notes during the interviews. I transcribed interview recordings and converted the notes into Word documents. Observation data were collected in the hybrid classroom. Online CTE students were assigned to the classroom at a set time to work on their online class. The classroom had 16 desktop computers arranged along the walls for students to use. Ms. Rose, the paraprofessional participant, monitored the hybrid classroom. Ms. Rose's desk was located in the middle of the classroom and had a desktop computer that linked to the student computers for monitoring and administrative duties. On the wall behind Ms. Rose's desk was a whiteboard stating classroom rules for students who wanted to listen to music while working. The rule listed on the board was "music may not be used if you are behind or have less than a 78%." Along one wall there was a bookshelf containing student binders and headphones for use in their online class. The online classroom was located directly beside the study hall classroom attached to the media center. The site followed two different class schedules during the week. On Monday, Tuesday, and Thursday, the site was on a normal schedule that consisted of four 85-minute class periods. On Wednesdays and Fridays, the site implemented a modified schedule that

shortened the four periods to 70 minutes and added a 45-minute student success period for students to receive remediation and stretch instruction.

Data Analysis

Interview data were uploaded to Dedoose for analysis. Interview data were fractured into categories of similar topics that were coded and aligned with the four research questions of this study. Observation data were collected using the student observation schedule (Appendix G) and the paraprofessional observation schedule (Appendix H).

Categories That Aligned With the Primary Research Question

The central research question of this study was what are secondary CTE students' views of their experiences with current online classes? The categories that aligned with the central research question included attitude toward online class, online class expectations, online class routines, and typical online lessons.

Attitude Toward Online Class

Some participants suggested that they enjoyed their online classes more than their traditional classes. Dave stated, "It's just fun to me. I like it better than a regular class." Kelly added, "It's a lot better and it is also harder." Cheryl also shared, "I mean it's good that I took the class, I liked it a lot." Chelsea suggested, "Basically it focuses on the same subject as it does in the regular class." Kelly and Chelsea both shared that their online class, "Goes into more detail." Brittany expressed concern that the content in the online classes was not present in the previous traditional classes she took for the same credit:

Yeah, never even learned in like ... a regular class. Same with like geometry, there was like these word problems that I never even learned. And if it's like by the state of Ohio, you have to learn a certain like ... material, why didn't I know it?

Besides revealing that her online class went into more detail, Chelsea also stated that she preferred a face-to-face class over an online class: "I understand it much better when I'm in a class with a teacher." Some participants suggested that they were indifferent when asked if they preferred an online or traditional class. Luke stated that his online class experience was similar to his traditional class experience: "I would say it's the same." Some participants suggested they felt confident in their online class. According to Dave, "It does get kind of difficult at times, but I feel like I can pull through it." Some participants suggested their online classes were easy. Meagan described the online experience as easy because it was based on previous material:

I don't know if it's because I'm a senior and I graduate.... and I'm taking a freshman class.... but, it was like freshman English. That's just review from junior high and elementary. I learned verbs and nouns and pronouns and all that stuff.... but it was easy.

Luke also suggested that his online class was, "Easier than I thought."

Online Class Expectations

Student participants suggested that they expected their online classes to be easy and boring before they started their online class. Easy was mentioned most frequently in the data. Justin said, "I thought it was going to be extremely easy honestly." Justin continued, "I just thought we were going to pretty much going to take tests and I could

test through it pretty quick.” Kristi added, “I thought it would be pretty easy because it was online, there wasn’t a whole lot of writing to do.” Sandy expected that she was, “going to like it because I’m able to learn at my own pace.” Many students believed their online class was going to be boring. Cheryl suggested, “I thought it was going to be boring.” Cheryl elaborated expecting the online class would be, “Just looking at a computer, pretty much” and would involve a lot of “sitting.” Meagan elaborated, “I just kind of expected to just click through slides and.... I don’t know.... read the material and then be quizzed on it.” Levi revealed that she thought she would receive an online mentor: “I thought that it would have like a mentor like speaking like on there like I would have headphones on.”

Online Class Routines

Assessments were identified most frequently in the data. Mark revealed that assessments were a major portion of the online class routines:

Basically I just go in there and I log on. Then you just.... like.... go through all the lessons that are on it. And once you get to.... like.... the posttests.... those you can.... like.... you get.... like the quizzes throughout the lessons. You get as many chances as you need to pass it.

Mark added another feature of online assessments was, “You can take the quizzes and tests as many times as you need to pass it.” Justin explained, “Well my thing is if I get so many wrong.... so I wouldn’t pass.... I just refresh it and restart the test.” Meagan also discussed online assessments however; she expressed concern with the online class tests:

When you take the tests, it doesn't tell you why it's wrong.... it's just incorrect. So it's pretty much.... you just memorize the pattern and which the answers come and that's how you pass. I feel like people aren't memorizing the material.... they're just memorizing sentences and what the questions that know where it goes. They're like.... oh, that one's B.... I already read that one. It's not like they got it right.... 'cause they knew it.

Meagan also suggested students may not be learning the academic material, but simply finding a way to beat the online testing design. These participant responses suggested the prevalence of assessments in secondary online classes. In all student observations, students engaged in online assessments.

Participants also identified individual work in the data. Meagan stated that individual work was a major part of the online class routine:

You just walk in.... log onto a computer.... put headphones on if you want.... and just kind of sit there and click. The only problem is it does get boring and you do lose focus. And you can get a headache from staring at a monitor for.... I mean.... I was in there for two hours and fifteen minutes every day.

Sandy stated, "Just go in there and do your work and you.... you just try to get as far as you can." Participants reported individually logging into a computer and working alone on their online classwork. Sandy added, "now that I have gotten into it.... it's just.... it's a steady routine." In both student observations, students worked individually on their online coursework.

Visual Examples was identified in the data as well. Meagan described how visual examples were incorporated into online class routines:

Like... when they put... like the definitions and stuff up.... they give you like.... visual examples to help. They have pictures with the questions now. So it's like.... when it's like asking you the definition of something.... it would give you like.... picture images where you.... it's kind of like.... okay.... come on that's a dog, so it's obviously a dog.... not a cat, a bird, or a duck.

Justin identified visuals in his online classes:

I mean when you're doing the practice problems and you get it wrong twice.... it shows you. It comes up in a little box and that box shows you how to do it.

But that box doesn't show you everything.

Participants suggested the upgrade from Gradnet to Omnipoint also provided better graphics. Meagan stated, "I like the fact that.... like.... the way the old one was set up. 'Cause this was Omnipoint.... and that was Gradnet.... so.... like.... I can see the difference.... 'cause now the graphics are better."

Typical Online Lesson

Participants described a typical lesson from their online class. Students suggested reading was the most common online lesson activity. Kelly revealed she expected her online class, "was going to take longer than usual.... because I'm not a fast reader." Kelly believed her difficulty with reading was an academic challenge for her online class success: "I'm a very slow reader and actually have to take in everything.... so I'm at a very slow pace." Luke reported his online class was similar to face-to-face bookwork:

“It’s about the same.... like the bookwork in regular classes is like the same as the online kind of.... It’s just basically nothing but bookwork.” Kelly stated:

I just read a lot of paragraphs. Each module has each lesson.... and each lesson.... they have three, four, five different sections. So then you have to read and then answer questions at the end or in the middle and or you have to like.... fill in the charts and then you take a quiz at the end.

Meagan observed flaws with how her online class monitored reading: “I feel like people would learn better ... instead of just clicking things ... and just having to read slides because you can just click ... it’s not ... it doesn’t know if you’re reading it or not.” Meagan suggested that many students just, “Click through to get it done.” Meagan explained that the concentration on reading in her online English class made material easy for her to comprehend:

English is more of reading a context and comprehending it. So, I mean.... if you don’t comprehend it that does suck.... but it’s just basically.... like.... you’re reading.... like.... say you have a word and the definition.... you’re reading that to know it.... like.... there’s not a reason why.... that’s just the definition.

Sandy reported that the readings helped her because it explained the content in multiple ways: “What’s helping me the most is that I can they give you.... they describe everything.... and you read it.... and they put it out there.... the processes and different ways.” Other participants suggested their online class had more text than a traditional class. Kelly remarked, “I think it is a lot more text.” Levi, however, suggested the amount of reading required in her online class was about the same as that demanded in a

traditionally taught class: “I think it had a lot of text that I would usually get in a regular classroom.” Levi was the only participant in the study enrolled in an elective class.

Participants stated the amount of text in their online class ranged from 50% to 100%. Kristi suggested her classes were almost entirely text based. When asked what percentage of her online class was reading; Kristi responded, “99.9% of it.... I mean they have usually.... for English they have like one video.... no it wasn’t English.... it was Government. One video for every module but it didn’t really do anything.” Chelsea, however, did not report more text in her online class. Chelsea stated, “There’s a little bit less reading than in a typical English class.... but there are some matching activities with like vocab before we read the lesson so.” Overall, most of the participants reported the class was mainly text based (see Table 4).

Table 4

Amount of Text

Alias	Amount of Text
Meagan	100%
Dave	100%
Justin	100%
Kelly	100%
Kristi	99.9%
Cheryl	Lots
Luke	60%
Brittany	50%
Mark	50%
Chelsea	Less Than Traditional Class

Collected observation data aligned with the interview data because students were reading online text in both student observations.

Students reported watching videos in their online classes. Even though Kristi stated that her class consisted mainly of notes, she also revealed that there were some videos in her online class: “You take notes and sometimes there’s videos.... but it’s mainly notes.” Mark also reported that there were some videos embedded in his online class: “Basically.... once you get in there you’ll.... once you get on.... you’ll have about eight lessons.... and you’ll just talk through the key points about all of it. Give you

some videos.... that's basically pretty much what it is." Brittany also stated that there were videos included in her online course: "Omnipoint has videos that like tells you what to do on some of them." Chelsea agreed, "The videos.... they.... before reading into a story or something it explains it first." Chelsea also suggested that embedding videos would be more appropriate in specific academic areas: "I think the Youtube videos would help a little bit more in English." In the first student observation, a few students watched online video. In the second student observation, no students watched online video.

Students stated that their online classes also included matching activities. Meagan suggested her online class was mainly, "Matching words with definitions." Chelsea believed that the matching activities helped her with, "Understanding more of the vocabulary words better." Cheryl also reported that her online class included matching activities: "Sometimes you do matching." Cheryl added, "Doing matching helps me a lot."

Summary of the First Research Question Results

Student participants suggested that they expected their online classes to be easy and boring before they started their online class. Participants reported that their online classes consisted of assessment and individual work and participants engaged in both activities during observations. Student participants enjoyed the self-paced learning design of their online courses. Participants suggested that their online classes provided more detail than traditional classes, and some participants questioned the alignment of the online content to the face-to-face classes. The focus group also suggested that the online classes went into more detail than traditional classes. Participants reported that their

online class was primarily text based, and students engaged in online reading during the observations. Additional activities identified in the online class included matching and video.

Category that Aligns with the Second Research Question

The second research question of this study was: What online instructional design features do CTE students identify that help them succeed in online courses? The category that aligned to the second research question was helpful online design.

Helpful Online Design

Participants identified pacing most frequently as an online design feature that assisted their successful completion of their online course. Brittany reported, “I think I understood more being online.... because if I needed help.... I could do it better.... rather than then going the pace of a teacher and.... or them going too fast.... and I don’t understand.” Many participants suggested working at an individual pace assisted them because they could work faster than normal without having to wait for a teacher or other students. In her first interview, Brittany explained the benefits of self-paced learning in her online class:

I can go at my own pace.... and I can do it myself instead of like.... the teacher you know.... explaining it. So I can just.... like.... read through it.... like.... answer each quiz and then have to take a post-test. I got my Geometry done in two weeks.... like a full semester in two weeks.

In her second individual interview, Brittany explained that she could complete an entire high school class quickly if she had an interest in the subject:

I like my math I did. I got my math done in two weeks, like a semester of math in two weeks. And then my English took longer.... mainly because I just wasn't like intrigued by English so like I was.... no. But I mean I got it done. I did all my English except for like two things and I just kind of looked over them.... didn't take the tests from them.... I just looked over them for the quizzes and stuff and it's like.... I remember this from school so I just.... let me take the review test and I got an 85 on the review test so like.... I was done.

Other participants reported that they liked being able to go at an individual pace because they could go back and spend more time on content when necessary. Mark stated that he used additional time to review online material before he took assessments:

You can go over the lessons again before you take the quizzes and it will tell you.... what was the other part.... it will.... right before it will have all the lessons in order and it will ask if you want to look over all of it.

Focus group interview participants also suggested the pacing of their online class was a positive experience. Levi appreciated the individual pacing of the online class:

I could do well in both classrooms and Gradnet.... It's just that on Gradnet like I didn't have to wait..... I didn't have to keep asking and raise my hand, ask if you could please repeat that again I didn't get to write that down. On Gradnet, I could just go back and read the lesson anytime I want. I don't have to wait for everyone.... the teacher to repeat it to me again or worry that the teacher is going too fast I could just go back.

Levi also stated that she would recommend online classes to other secondary CTE students because of the individual pacing:

I would tell them that they can remain calm and that you can take your time on it... that there really isn't much pressure like if you are in a regular class and that if there's a question on there that they don't understand they can always go back and read it... reread it.

Only a few participants reported that pacing was an issue in their online class. Chelsea was struggling to complete her online classes in time for graduation which was in 15 days: "I've got three more to do." Luke also explained that it was hard for him to keep pace in the online class because of missing lots of school: "The hardest part for me is that I missed a lot of days this year." Levi noted that other students enrolled in online classes viewed pacing as a problem: "There was this one kid that said he had to do most of Gradnet at home because it was a bit exhausting and then he might not have time to... to do it here or something." Although individual student pacing data were not collected using the Student Observation Schedule (see Appendix G) or the Paraprofessional Observation Schedule (see Appendix H), students worked at an individual pace during all observations.

Another positive feature of the online classes was instant feedback. Participants learned from the mistakes they made on the assessments because the assessments embedded explanations that told them why their answers were wrong. Justin explained, "The fact that it tells you... me... I get the answer right or wrong. It doesn't just pass me or fail me." Meagan concurred adding, "It told you why your answer was wrong."

Participants also identified the organization of the online class as a positive instructional design feature. Luke reported that the organization of the class helped their personal organization during participation in the class: “Nothing really.... because normally like.... my.... like.... I don’t know.... like my organization is bad so.... but not during the online classes.” Dave agreed stating, “I like it more because I just get to see everything in front of me instead of having somebody talk about it.”

Summary of the Second Research Question Results

Participants suggested that the individual pacing of their online class was the best feature of their online class. Participants also identified both the instant feedback embedded in their online assessments and the organization of the online class assisted their successful completion of the online class.

Categories that Align with the Third Research Question

The third research question of this study was what online instructional design features can be identified that do not assist online CTE students succeed in online courses? The categories that aligned to the third research question included online difficulties and recommendations to improve online classes for secondary CTE.

Online Difficulties

Participants identified the rigor of the content as an online difficulty. Mark stated what was difficult understanding Biology for him was, “Like overall.... the whole course.... like learning about all the different like.... plant parts and what makes what.” Luke added, “The hardest part was like everything.” Justin suggested that the level of

rigor contained in the online classes was inconsistent because some sections were extremely easy and other sections were tough:

Because some things I did.... like.... really easy and fast and it's like.... oh.... I could learn like three of these in like two seconds..... And other stuff it's like you're throwing too much in here..... I can't get all of it at once..... It takes me a second to learn it.

Ms. Rose also identified that many online secondary CTE students found the online content too rigorous:

Each student learns differently.... there's some kids in here that you know have.... they just fly through everything. It could have just been like they didn't take their class that they were in with a teacher seriously.... or didn't do the homework.... but they understand the information.... so they fly through it. Other ones.... they struggle with the reading, understanding.... like not being able to comprehend what is asked.... what's being asked of them.... so it takes them a little bit longer.... um.... unfortunately.... I think that Omnipoint is at a higher level than some of these kids are at actually at so they're.... they struggle with understanding what is being asked of them.

Many student participants experienced technology difficulties during their online classes. Brittany suggested that improving the technology in the hybrid classroom would positively impact student online success: "I think just to have faster computers... because they're like... they're so slow". Additional research is necessary to distinguish if the lag experienced by students was an online design feature indicating the course was too robust

or if the school computers were outdated. Levi described her frustration with technology issues and how they complicated timed assessments in her online class:

What I find the most difficult is that like I would have to take a quiz sometimes and sometimes there would not be enough time for me to take it and then when I try to press X I would.... cause I'm not finished they would.... it would say that I would have to that.... that it would not let me like click out of it in the middle of it some I would have to turn it in when not complete.

Levi had to shut down her computer prematurely when she was not done with a test so that the class would not grade her incomplete test and record it as a grade:

Sometimes when I try and take a test or an exam like.... sometimes like depending on when I would take it like if it's the end of the class I'd have to click off and actually have to shut down the computer because if I would just click it off it would submit to the GradNet and then I might.... I, it wouldn't count as a grade although I didn't technically finish.

During both the first student and first paraprofessional observations, students had technical issues however students did not have technical problems in both the second student and second paraprofessional observations.

Many participants suggested that they needed a face-to-face teacher. Chelsea stated, "I can work on a computer sometimes but staring at it all the time and not being able to get a teacher's opinion. Also on this same subject.... because sometimes the teacher has a different opinion." Kelly concurred adding; "I need a teacher and face to

face to teach me instead of reading on a screen and forgetting it after three seconds after reading it.”

Recommendations to Improve Online Classes for Secondary CTE

Participants suggested adding group work to their online class would improve their online experience. Levi explained, “I think that if someone would get to work on a partner in there so they would have like their own experience and see what they went through.” The participants also suggested adding additional activities. When asked how to improve the online class, Kelly suggested designers should add, “More activities..... Just any that is like fun but also academic to help me learn.” Reading assistance was mentioned in a few excerpts. Kelly explained, “There were times that I did need help but it was just so someone could read to me.... and that was it because sometimes I can’t learn without someone reading to me like a teacher.”

The paraprofessional also provided suggestions to improve online classes for secondary CTE students. Ms. Rose suggested that there should be more explanations embedded in the online class explaining why answers were wrong instead of just providing the correct answers. Additionally, Ms. Rose recommended including a summative project to the online classes instead of relying only on tests to assess student comprehension. Students were observed completing traditional individual online tests during both student observations and the paraprofessional engaged in administrative duties related to traditional individual online testing during both the paraprofessional observations. Ms. Rose also suggested the online courses were too academic in nature and did not relate concepts and ideas to career clusters:

I'm not sure how it (Current online classes) relates to the career tech... it's more for the academics.... to catch up on the academics. I think though.... if they could apply it.... I think they could see how.... you know... how geometry actually affects is in the workplace. You know or..... the English and how that is important to know and know how to properly write a paper and see how that would work in a workplace it might help..... Just making it more relatable to like their everyday life and what they're going to do outside of here.

Summary of the Third Research Question Results

The third research question of this study was what online instructional design features can be identified that do not assist online CTE students succeed in online courses? Participants stated that the online content was difficult for them and that the rigor was inconsistent between lessons. Participants experienced technology issues with their online classes that included slow interactions and problems with assessments. Both the student participants and the paraprofessional experienced technical difficulties during some of the observations. Participants suggested that having a live teacher would assist in the completion of their online course work. Participants identified improvements for their online class which included group work and additional activities. Ms. Rose suggested embedding additional explanations in the online class and including a summative project instead of relying only on a traditional summative test. Ms. Rose also suggested aligning academic online content to career technical content to assist student comprehension of how academic content applies outside of the academic classroom. Online instructional design features identified that do not assist online CTE students succeed in online courses

include rigorous and inconsistent online content, technology issues, lack of a live teacher, lack of group work, limited summative testing options, and lack of relevance to CTE.

Categories that Align with the Fourth Research Question

The fourth research question of this study was what features in an enclosed hybrid environment assist secondary CTE student success? The categories that aligned to the fourth research question were hybrid class routine and hybrid classroom Experiences.

Hybrid Class Routine

Most participants reported that the hybrid classroom provided a quiet environment where they were assigned class time and provided with an individual computer. A typical student's hybrid class routine consisted of logging into the online classroom, taking notes in a binder, and individually working on online instruction. Kristi explained, "You go in... sit down at a computer... load up your modules and stuff that you're going to start... and just dive in." Some students also reported listening to soothing music while they worked. Students were observed reading online text most frequently in both observations. Additional observed behaviors included students taking an online assessment, students asking the paraprofessional for assistance, and students taking traditional notes. The paraprofessional was observed most frequently reading to students in the first paraprofessional observation and most commonly answering student questions in the second paraprofessional observation. Other observed behaviors in both observations included administrative activities, monitoring students at her desk, and monitoring students while walking around.

Hybrid Class Experiences

Participants identified both positive and negative experiences with the hybrid classroom. One positive experience with the hybrid classroom identified by many participants was receiving additional assistance from the paraprofessional. Sandy explained that the assistance provided by the paraprofessional was a positive feature of the hybrid classroom:

I think with the way Gradnet is set up in the classroom... I am able to work at my own pace... and to be able to do things on my own. But there's still... like Ms. Rose... she's still there to help with assistance if I need anything.

Brittany also discussed her experiences with having an assigned paraprofessional in the hybrid classroom:

I did... I felt like... I mean she was help but... like she tried her best to help us... because she didn't know like... every subject that we do take. But I do give her props... because she has to do ...a lot that she's going to have to do by helping us out.

In both observations, the paraprofessional assisted students by answering questions, providing technology assistance, and reading to students.

Many participants revealed that the hybrid classroom helped them stay on task. Cheryl explained that the hybrid environment was an essential component to her online class success. Cheryl proposed, "Because if I do it myself... then... I'm probably not going to get it done. But Ms. Rose is in there and she like, she doesn't make us... but she... like... encourages us to do it."

Another positive feature of the hybrid classroom was having a set location and time. In her first individual interview, Brittany identified having an assigned place and time was essential for her successful completion of her online coursework:

If it wasn't there I think... honestly... no one would do it because there's many people who don't have... like... computers at home. And they're not going to be focused to do it... I mean like... because I had a reason for not passing my class... but most of them just don't try. Do you know what I'm saying? So there is more... a higher rate of people who just didn't try... and now they have to get it done... if you tell them to do it at home... they're probably not going to... I mean... they didn't do their homework the first time... I doubt they are going to do it.

Justin concurred stating that having technology provided was beneficial to his successful online class completion:

I kind of usually just walk in there... and sit down at the computer... and I start doing what I need to do. It's nice because obviously... I don't have to have my own computer to do it... and it works out pretty well honestly.

Chelsea also agreed, "I don't have a computer at home... and I have no way of accessing a computer... unless I use the library for... and sometimes it's closed."

Many participants also mentioned that the quiet environment provided in the hybrid classroom helped them in their online classes. Mark stated, "I could concentrate more because it's more... it's just me basically looking at the computer... as opposed to a

classroom where you got everybody in there... and it just makes it harder to really concentrate.”

Some participants identified the hybrid classroom as a negative experience because it was distracting. Justin believed that the hybrid classroom was not helpful with his online class. According to Justin, “I honestly think I would probably complete it and learn it better if I was in a normal classroom.” Other participants suggested that the hybrid classroom could be distracting at times because of disruptive students. Kelly stated, “The fact that I’m always distracted in my class and I cannot concentrate unless I’m in a quiet place.” Justin suggested that some of the other students in the hybrid class were distracting:

It depends on whose actually in there... because there’s people in there that like to talk... and be loud and irritating... and they like to blare their music and stuff. But other than that... if you have your headphones it is usually not bad.

Dave suggested that the hybrid classroom had no influence on the successful completion of his online coursework: “I never really expected to get help from a class like that... like... from a teacher and stuff... because I feel like they’re just there to do a job and not... like... know every single subject like we are.” Levi continued, “I think that I would be able to get to it because I have study hall... and I have the Internet at home... so I pretty much could do it.”

Another negative experience identified by some participants was the lack of content specific help. Brittany revealed her frustration with the hybrid classroom:

And I think it was more that no one knew how to do that Geometry. Like... Ms. Rose doesn't know how to do Geometry... that was in there... and no one... there was no other person to help me like really do it... and I was just stuck on this test forever... I could not get past this one test.

Sandy added, "Not really having someone present that can help if I need it. I mean... yeah Ms Rose is in there... but sometimes that's not always helpful."

Summary of the Fourth Research Question Results

The fourth research question of this study was what features in an enclosed hybrid environment assist secondary CTE student success? Participants reported that their typical hybrid classroom routine consisted of logging into a computer, taking notes in a binder, and working individually on online coursework. Many Participants suggested that having a paraprofessional available for assistance was helpful however some students suggested that additional content specific help was needed. Participants suggested that having a set location, technology, and time assisted in their successful completion of their online classes. Many participants suggested that the quiet environment provided in the hybrid classroom was beneficial; while other participants reported that the environment provided in the hybrid classroom was not helpful.

Evidence of Trustworthiness

Internal Validity

This study adhered to all of the protocols specified in Chapter 3. The study employed individual interviews, focus group interviews, and observations using both field notes and audio recordings to limit construct validity. Data were pattern matched to

the pattern identified in the Literature indicating that CTE students struggle with written text. Several participants matched the pattern, citing a difficulty with the text-based online class. For example, Kelly explained her difficulty with the class was that she was a slow reader. Other participants listed the text in the online class as a positive experience. Kelly also explained, “one of the strengths was it was just reading.”

External Validity

This qualitative case study managed external validity by following the design described in Chapter 3. The multiple embedded units of analysis sample included three participants from each of the four career clusters. This purposeful sample attempted to collect data that best represented the Secondary CTE students at the site. All 12 participants completed the First and Second Individual Interviews however only four participants were able to attend the focus group interview due to other commitments including graduation rehearsal, prom activities, and additional time needed to complete their online coursework.

Reliability

This study achieved triangulation by collecting data through two individual interviews, a focus group interview, and two student observations. The case study employed Dedoose as an online qualitative database. Also, the paraprofessional in charge of the hybrid classroom was both interviewed and observed.

Confirmability

All data collected was reported to eliminate researcher bias. Also, the case study protocol defined in Chapter 3 was followed during the entire study to limit reactivity, to

ensure the researcher did not influence the results. No students with a relationship with the researcher were allowed to be participants in the study.

Results

Research Question 1

The primary research question that guided this study was: What are secondary CTE students' views of their experiences with current online classes? Before starting their online classes, student participants revealed that they expected their online classes to be both easy and boring. Participants stated that assessment and individual work made up the majority of their online classes. Student participants identified the self-paced learning design as a strength of their online class. Some participants suggested that their online classes provided more detail than traditional classes and questioned the alignment of their online class to their traditional face-to-face classes. The 12 student participants were taking 22 online classes collectively. Online courses included 8 English, 5 math, 4 social studies, 2 science, 1 health, 1 social problems, and 1 journalism. Most participants were taking online classes for credit recovery while only one participant was taking an online class as an elective. Half of the participants reported that their online class was almost all text based while all of the participants except one suggested that their online class was more than 50% text based. In the focus group interview, most student participants reported their online class had more text than a traditional class. The focus group also suggested that the online classes went into more detail than traditional classes. Students read online text more than any other activity during the observations. Secondary CTE students view their experiences with online classes as self-paced text-based classes

assessed through traditional online assessments that are more academically rigorous than traditional classes.

Research Question 2

The second research question that guided this study was: What online instructional design features do CTE students identify that help them succeed in online courses? Student participants reported that the individual student pacing offered in the online courses helped them complete their online classes. Participants also identified reading, assessments, and graphics, tables, and simulations as positive online experiences.

Research Question 3

The third research question investigated by this study was: What online instructional design features can be identified that do not assist online CTE students succeed in online courses? Participants revealed that their online classes were mainly text based. They also stated that assessments were a major part of their online classes. They also stated that their online classes also included many assessments. The focus group suggested that more time should be allocated to complete online classes because some participants felt rushed completing the classes in time for graduation. The paraprofessional suggested that the online classes were too rigorous for the CTE students enrolling in them and that many CTE students struggled to understand what they were being asked to do. The results of this study suggest that the online instructional design features that do not assist online CTE students include the text-based nature of the class,

individual student pacing, the academic rigor of online content, and difficulties with online assessments.

Research Question 4

The fourth research question of this study was: What features in an enclosed hybrid environment assist secondary CTE student success? Student participants were provided a quiet environment with an individual computer where they could take notes in a binder and listen to music to help them concentrate. Participants also had a dedicated paraprofessional provided to answer questions, provide support, and assist with technical issues. The paraprofessional participant described her activities as reading to students, providing printed material, providing notes, note taking training, and answering student questions. The paraprofessional was observed reading to students and answering student questions most frequently in both observations. Participants of this study suggested that the hybrid environment features that assisted them to complete their online classes included having a set time and place, access to technology, and the assistance of a paraprofessional.

Summary

This chapter presented the data collected during this qualitative study with multiple embedded units of analysis. Student participants provided data through two individual interviews, two observations, and one focus group interview. The paraprofessional participant provided data through an interview and two observations. The 12 participants were selected using a purposeful sample that included three

participants in each of the four career clusters. There were nine female participants and three male participants.

Research has shown that current secondary online classes are mainly text based reading and writing, and rely on student self-motivation (Brenner, 2007; Picciano & Seaman, 2007; Roblyer, Davis, Mills, Marshall, & Pape, 2008; Wallace, 2009; Ronsisvalle & Watkins, 2005). Student participants viewed their experiences with online classes as self-paced text-based classes assessed through traditional online assessments that are more academically rigorous than traditional classes. The paraprofessional stated the online class activities included; lots of reading, note taking, watching videos, and interactive simulations. In both student observations, students were most frequently engaged in reading and taking assessments. Most participants reported that the individual pace offered in their online classes was a positive characteristic. A few students suggested that the text based nature of the online class assisted their successful completion of their online class. Other participants reported that the instant feedback/test design of the online class helped them successfully complete their online class.

Instructional design features that did not assist participants' successful completion of their online classes included; the text-based design of the class, individual student pacing, the academic rigor of online content, inconsistencies in the rigor of online content, and difficulties with online assessments.

Most participants suggested that the hybrid environment features that assisted completion of their online classes included having a set time and place, access to technology, and the assistance of a paraprofessional. Alternately, some students

expressed indifference to the hybrid classroom, and other participants revealed that the hybrid classroom could be distracting depending on other students assigned to the classroom. Participant recommendations for improving their online classes included incorporating more group work, adding additional activities, being read to, and providing additional explanations to incorrect responses. The paraprofessional suggested that the online courses for CTE students should relate to their career lab and should incorporate a culminating project instead of only assessing through traditional tests.

Chapter 5 includes the discussion, conclusions, and recommendations derived from the data collected including the interpretations of the findings, the limitations of the study, the recommendations of the study, the implications, the methodical, theoretical, and/ or empirical implications, and the recommendations for practice of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative case study with multiple units of analysis was to describe positive and negative experiences with online learning for secondary CTE students. This study also included a detailed description of the hybrid class environment. I collected data through two individual interviews, two observations, and a focus group interview. Additional data were collected from the paraprofessional through an interview and two paraprofessional observations to provide a detailed description of the hybrid environment.

The central research question that guided this study was as follows:

1. What are secondary CTE students' views of their experiences with current online classes?

Additional questions that guided the study included:

2. What online instructional design features do CTE students identify that help them succeed in online courses?
3. What online instructional design features can be identified that do not assist online CTE students in online courses?
4. What features in an enclosed hybrid environment assist secondary CTE students?

The sample included 12 secondary CTE participants above the age of 18 years and the paraprofessional in charge of the hybrid classroom at a career center in the Midwestern United States. Chapter 4 presented the results of the study. Chapter 5

includes the interpretation of the findings, recommendations of the study, implications, theoretical and/or empirical implications, and recommendations for practice.

Interpretation of the Findings

The analysis of the data identified many themes. Most of the student participants were taking their online class for credit recovery and were motivated by graduation. This study investigated secondary CTE students' experiences with current online classes, positive and negative online instructional design features, and what features a hybrid environment assisted in the successful completion of their online classes. The following section describes how the themes of this study align to each of the four research questions in detail.

Findings Based on the Central Research Question

The first research question of this study was what are secondary CTE students' views of their experiences with current online classes? Research suggested successful secondary online students display the following academic traits: self-motivation, reading skills, and writing skills (Brenner, 2007; Picciano & Seaman, 2007; Roblyer, et al., 2008; Ronsisvalle & Watkins, 2005; Wallace, 2009). Student participants in this study reported learning best through modeling, collaboration, hands-on activities, and projects instead of traditional reading and writing. Participants expected their online class to be easy and boring before starting the class. Participants stated online design features consisted mainly of reading, writing, and taking assessments. Most participants indicated that their online class had more text than traditional equivalents. These findings are consistent with

the previously identified disconnect between secondary CTE student learning preferences and secondary online course design established in Chapter 2.

Half of the student participants of this study identified their career technical lab as their favorite subject, which corresponds with previous research that identified the preferred learning style of secondary CTE students as modeling, collaboration, hands-on, and project based. Quite a few of the participants revealed that they enjoyed their favorite class because of the subject matter content. Most of the participants identified English/language arts (ELA) as their least favorite subject because they found it difficult; however, the reading and writing skills necessary for successful completion of a text-based class are embedded in the content standards of ELA. This finding is consistent with the identified disconnect in the research between secondary CTE student learning style and current secondary online course design (Karmel, 2010; Vorhaus, 2010). Many student participants reported they were taking an online ELA course during this study.

All of the student participants except one were taking their online course for credit recovery and were motivated by graduation. Study results were different for the participant in the elective course. The paraprofessional indicated that graduation increased secondary CTE student motivation. Additional research addressing secondary CTE students who are not motivated by graduation is recommended to identify other reasons for student motivation.

Strategies secondary CTE students used for successful online class completion included note taking, student focus, listening to music, using a phone, and student motivation. Participants identified reading and note taking as typical activities in their

online lessons. Student participants reported that the design of their online classes consisted of assessments and individual work.

Findings Based on the Second Research Question

The second research question of this study was what online instructional design features do CTE students identify that help them succeed in online courses? Before student participants began their online classes, students expected their online class to be easy and boring. Many participants explained that they had a positive attitude toward their online class, with some students reporting that they enjoyed their online classes more than their traditional classes. More than half of the participants would take online classes in the future, while only a few would not. Some participants were not sure if they would or would not participate in online classes in the future. Participants did not have a definitive recommendation for students taking multiple online classes at the same time. Student participants reported the following positive design features of their online courses: individual pacing; emphasis on reading; ability to retake assessments; instant feedback embedded in the design; organization; and graphics, tables, and simulations. Participants also explained that they preferred to learn through modeling, collaborative learning, hands-on learning, and projects. All 12 participants revealed that they expected to complete their online classes successfully. Contrary to the research found in Chapter 2 and most participant responses, a few participants liked the text-based nature of their online classes. The focus group participants reported that their online classes went into more detail than traditional classes.

Findings Based on the Third Research Question

The third research question of this study was: what online instructional design features can be identified that do not assist online CTE students succeed in online courses? Student participants reported having difficulties maintaining attention and staying motivated during their online class. They also expressed difficulties with the online assessments. Students believed they did not have the academic skills necessary to complete their least favorite subject. Some students suggested their lack of academic skills was a result of poor teaching practices. Participants also identified book work and lecture as their least favorite learning style.

The online instructional design features that did not assist secondary CTE students included the text-based nature of the classes, individual student pacing, academic rigor of online content, technology, and online assessments. Participants reported that their online classes contained more text than traditional face-to-face classes. They also suggested that math was the most difficult subject to take online.

Many participants revealed that their online curriculum did not align with the content of traditional face-to-face classes. As explored in Chapter 4, Brittany experienced frustration with the lack of alignment between her online class and her previous face-to-face class she had not passed. Kristi revealed that she expected to struggle in her online class because, “I knew a lot of the classes you’re learning a lot more than what you would in an average class.” Kelly concurred stating her online class, “Explains more into detail what happens but it’s much harder.”

Student participants recommended the following improvements for their online classes: integrate group work into the class, add more activities, and read to students or provide additional explanations. The paraprofessional revealed that some students displayed academic ability but lacked focus, and other students struggled with the academic rigor. The paraprofessional suggested that the online design could be improved by integrating career skills into the content so students could visualize how the content related to their future. Justin agreed stating, “I’d rather go out and work on something that’ll actually give me something I’ll use in the future... other than what $a^2+b^2=c^2$... I’m not going to use that.”

Findings Based on the Fourth Research Question

The fourth research question of this study was what features in an enclosed hybrid environment assist secondary CTE student success? Hybrid classrooms can be set up and implemented in a variety of ways. Features of the hybrid environment that helped CTE students complete their online course included having a set time, a set place, access to technology, and access to a paraprofessional. The most frequent response participants identified in this study that helped them complete their online class was having a set location and time to work. Participants also revealed that having access to the hybrid classroom helped them stay on task and that the paraprofessional provided additional assistance that helped them be successful in their online class. Alternately, the participants in the focus group were split when asked if the hybrid classroom assisted them. Most participants reported that the hybrid class supported their online course work

when it was quiet; however, some indicated that the hybrid classroom negatively impacted students when it was noisy.

Participants described their routine in the hybrid environment as logging into an individual computer in a quiet environment, taking notes in a binder, and working individually. Ms. Rose explained that students have a unique binder that contains all of their materials for the online class that stays in the room. The posted rules allow students who have a C or higher to listen to music while working. Students were observed reading, note taking, watching videos, and completing interactive simulations. Ms. Rose stated that her duties include reading content to students, providing handouts, assisting with notes, and answering questions. Some students were assigned a vocational special education coordinator (VOSE) who provided additional assistance for students with individual education plans (IEPs) and students with a Section 504 plan. The paraprofessional suggested that note taking was the most critical indicator of successful secondary CTE student completion of an online class.

Findings Aligned With Previous Studies

According to Thompson et al. (2012), there are over one million students enrolled in CTE in the United States. The National Association of State Directors of Career Technical Education Consortium (2014b) reported that there are 14 million students in the United States enrolled in CTE. My review of the literature in Chapter 2 indicated findings regarding students' positive and negative experiences with online secondary education. In this section, I compare findings from my study with findings from previous research.

Positive Experiences With Online Secondary Education

Results from previous studies indicated that online classes are just as effective as or more effective than traditional classes in helping students achieve academic success (Association for Career and Technical Education, 2010; Means, et al., 2009; O'Dwyer et al., 2007; Rockman, 2007). The results of my study supported these findings because all 12 student participants reported they expected to complete their online classes successfully during both their final individual interview and the focus group interview. Brittany indicated that she learned more in her online class than in her traditional class and questioned the alignment of the online classes to traditional classes.

Student views. According to findings from Journell's (2010) study, students reported that their online courses were both easier and quicker to complete than face-to-face classes. Overall, my study results supported this finding. Brittany was able to complete her entire math class in 2 weeks. Mark also revealed that he completed his online ELA class quickly. Kristi suggested that she did not think anyone could fail the online class because students can continue to retake assessments until they achieve a passing score.

CTE online applications. Previous studies indicated that online classes provided opportunities for students that were otherwise unavailable through traditional instruction (Association for Career and Technical Education, 2010; Moore Gray & Tollison, 2007). In my study, Levi's experiences supported this finding. Levi had deferred graduation to participate in additional CTE instruction, but had completed all of the core classes

required for graduation. Levi was able to complete an elective course in journalism that was not offered face to face by taking the class online.

Hybrid classroom. Previous studies indicated that the presence of a blended classroom positively impacted successful secondary online course completion (Means et al., 2009; Patrick & Powell, 2009). Other researchers found that having a set time, location, and a computer increased student online completion rates (Kerr, 2011). Most student participants in my study reported that the hybrid classroom provided a set location and time, kept participants on task, and provided additional assistance. Some students revealed that the hybrid room could be distracting if classmates were too loud. In the focus group interview, only half of the participants reported that the blended classroom made any positive contribution to their online class completion.

Negative Experiences With Online Secondary Education

The Review of Literature identified many negative experiences with online secondary education. The following themes emerged; student views, access issues, population issues, and design issues. This section investigated how the literature aligned to the study results.

Student views. Negative experiences with online classes included the lack of flexibility provided in the online class and technology issues. (El Mansour & Mupinga, 2007). My study results supported these findings. Justin's online math class explained content again after he missed a question multiple times. The explanations, however, did not include everything. Levi experienced frustrations with her online assessments when she lost her work shutting down the computer because she did not have enough time to

finish. Brittany recommended the best way to improve her online class was to get faster computers in the hybrid classroom because the current computers were too slow. Research also indicated that students struggled to complete assignments in the time allotted in online classes. (O'Dwyer & Klieman, 2007). Study results supported the research. Levi explained that one of her peers was struggling completing their online class and was attempting to work on it outside of school to complete it on time. Chelsea reported that she only had 15 days to complete her three online classes before graduation and felt stressed because of time. Many participants suggested that they should enroll CTE secondary students in their online classes earlier to alleviate the stress from not enough time. Some participants suggested that students should enroll in online classes during the summer before their senior year.

Access issues. Research suggested that access to reliable Internet and an adequate computer was dividing students into those that have it and those that do not. (Barbour, et al., 2011). The hybrid classroom in my study included a set location and time, computer, Internet access, and a paraprofessional which alleviated the digital divide for participants identified in the literature.

Population issues. Successful online students are also individually motivated. (Kerr, 2011; Murphey & Rodriguez-Manzanares, 2009a). Student participants in this study reported having difficulty both staying motivated and keeping their attention on their online coursework. Secondary online classes are being used for credit recovery, remediation, and cost effectiveness (Barbour et al., 2011). My study results supported the research because 11 of the 12 participants were enrolled in online classes for credit

recovery. Students with an Individualized Education Plan (IEP) are enrolled in secondary online classes (Müller, 2010) and IEP students perform lower in online classes than in traditional classes (Feng & Cavanaugh, 2011). Although this study did not investigate if participants were on an IEP or not, some participants revealed that they were on an IEP, and some were taking medication. These disclosures support research findings that IEP students are taking online classes. Additional research is necessary to investigate how CTE students with IEPs or 504 Plans perform in online classes. Secondary online students were described as students who completed tasks quickly with as little effort as possible (Journell, 2010). Ms. Rose suggested that note taking promoted students to interact with the content and not be happy clickers and just click through information and try and pass the test. The happy clicker phenomenon supports Journell's findings.

Design issues. The literature suggested that secondary online class design did not require students to learn material but instead to go through academic content as quickly as possible with the least amount of effort (Barbour and Siko, 2012). The paraprofessional in my study supported this finding by describing the phenomenon of happy clickers. Brittany also talked about skipping academic content and simply taking the assessment so that she could pass. My study did not support research suggesting online CTE students have a high rate of non-completion of the class. (Benson, et al.). All 12 participants expected to successfully complete their online class.

Summary of Findings Aligned to the Review of Literature

The findings of my study aligned to previous research in a variety of ways. Previous research presented both positive and negative experiences with online secondary

education. The positive experiences included: student views, CTE online applications, and the hybrid classroom. The negative experiences included: student views, access issues, population issues, and design issues. With few exceptions, the results of my study aligned with the research presented in Chapter 2.

Limitations of the Study

One of the limitations of this study was the perceived lack of generalizability inherent in qualitative case study design. Yin (2009) revealed that results may not be applicable to other populations. Because of this, my case study investigated a representative case. Yin (2009) explained that a representative case is typical of the entire population. The 12 participants in my study were purposefully sampled to include three members of each of the four career clusters to create a representative secondary CTE case. Creswell (2007) stated case study research is the investigation of an event within a single setting. Patton (2002) reported that qualitative data includes quotations and descriptions that explain a story. Creswell (2007) emphasized that quality case study research investigates a phenomenon over time using multiple sources of data. My study collected data through two individual interviews, one focus group interview, one paraprofessional interview, two student observations, and two paraprofessional observations. Even though my study included a representative sample, additional research is necessary before results are generalized to other populations.

Another limitation of my study was the small sample size of 12 participants at the same career center in the Midwestern United States. Secondary CTE is administrated differently between different school districts, states, and countries. The student

population of the site used in my study attracted students from 16 different school districts located in five different counties. The site also provided all-day education including both career lab instruction and core academic classes. Many other career technical centers only provide half-day career instruction that requires students attend half-day academic instruction in a traditional high school.

The twelve participants in my study all participated in both individual interviews. However, only four participants completed the focus group interview: Kelly, Luke, Chelsea, and Levi, who collectively represented the construction/manufacturing cluster, the human services cluster, and the environment and agriculture cluster. The focus group did not include a representative from the art, business, and health cluster, which may have impacted the results.

Another limitation of my study was that the purposeful sample included two pairs of students who were studying the same lab program; Sam and Dave were both studying digital video production and Levi and Justin were both studying construction electricity. Moreover, all three environment and agriculture cluster students in the purposeful sample were studying small animal care: Cheryl, Chelsea, and Kristi. Since the sample did not include any other programs it may not provide an accurate description of the entire student population of the environment and agriculture cluster which also comprises the following programs; automotive technology, automotive collision repair, gas and diesel engine systems, landscape and turfgrass management, small animal care, and alternative energy technology. The sample would have been more representative if it had included some additional programs from that cluster.

Another limitation of my study was that all of the participants were over 18 years of age. Eminent graduation was the primary motivation for 11 of the participants. The 12th participant, Levi, had already graduated and deferred graduation to continue her instruction in her lab (students with IEPs are allowed to defer graduation and attend public school in Ohio until 22 years of age). The difference in motivation between Levi's experiences with an online elective was very different from the other 11 participants who needed an academic class to graduate. The other 11 students had also failed a traditional face-to-face academic class in the same subject. Online secondary CTE students under 18 years of age may have reported different reasons for motivation.

Although my study relied on a purposeful sample that included three participants from each of the four career clusters, the sample did not attempt to replicate the sex of students which resulted in a disproportionate female ratio. The sex ratio of the sample included 33% males to 66% females whereas the sex ratio of the site was 56% males to 44% females. (Penta Career Center, 2013). The purposeful sample also did not account for the sex ratio of students enrolled in online classes. The sex ratio of the 42 students enrolled in online classes at the site was 64% male to 36% Female. Additionally, the focus group sex ratio was 25% males to 75% females, which was not representative of the site sex ratio. The sample was 92% white non-Hispanic and 8% Hispanic, which was not representative of the site population of 83% white non-Hispanic students, 4% African American students, 9% Hispanic students, and 4% Multiracial. (Penta Career Center, 2013). This population is unique to a single site and results derived from this study may not be representative of other populations. Additional research investigating online

learning experiences between different races or genders is necessary because both topics were outside the parameters of this study.

Another limitation of my study was that the purposeful sample did not investigate secondary CTE online students with an identified learning disability. The site reported that 28.4% of students who attend have either an individual education plan (IEP) or a Section 504 plan (Penta Career Center, 2013). The difference between an IEP and a Section 504 plan is that an IEP is classified as a special education service under the Individuals with Disabilities Education Act (IDEA) while the Section 504 is considered general education and is provided by the Americans with Disabilities Act (ADA). Students with IEPs receive both specialized instruction and accommodations while students with a Section 504 only receive accommodations. Another difference is that IEPs only apply for public k-12 education while Section 504 plans follow students into their adult life. This study did not investigate either accommodations provided for students with disabilities or strategies students with learning disabilities used to achieve secondary online course completion. It also did not investigate or observe the accommodations provided to student participants in this study by their assigned VOSE. Some participants reported that they had a learning disability, and they utilized VOSE services while completing their online class. Additionally, some participants shared that they took medication to help them complete their online class. Additional research investigating special education accommodations for current online secondary online classes and strategies used by students with learning disabilities to achieve online class

success is necessary. Future secondary online CTE studies should differentiate between race, gender, and students with learning disabilities.

Implications

Positive Social Change

Study results suggest many implications for social change. CTE students are using secondary online classes to meet graduation requirements. Depending on the source one uses, either there are over 1 million students (Thompson et al., 2012) or 14 million students in the United States enrolled in Career Technical Education (CTE) (The National Association of State Directors of Career Technical Education Consortium, 2014b). Online secondary education is a rapidly expanding segment of public education. The design of current secondary online classes caters to traditional secondary students who demonstrate the traits identified as necessary to be successful online learners at a higher frequency than secondary CTE students. For example, secondary CTE students identified hands on learning as their preferred learning style while current online secondary online classes were reported to be mainly text based.

Strategies that led to secondary CTE student online success including; note taking, having a computer with a set time, having the assistance of a paraprofessional, using phones, reading to students, and listening to music. Having access to a computer influences secondary CTE student success since many secondary CTE students do not have access to a dependable computer or Internet access. The availability of a hybrid class environment also influences secondary CTE online student success.

Methodical, Theoretical, and/or Empirical Implications

The theoretical framework of this study was constructivism. Constructivism states that people live in a world made up of their experiences, which may differ from the actual physical world around them (Patton, 2002). Constructivists believe that experiences influence a students' vision of reality. Constructivists suggest that individuals gain knowledge through their senses (Ally, 2008). Constructivists believe that learning centers around the person and that instructor's roles should be to help guide and assist self-centered learning (Ally, 2008). Constructivists argue that online learning needs to allow students to access information individually, but there must be support embedded into the class that includes "learner-to-learner, learner-to-instructor, instructor-to-learner, and learner-to-expert interactions" (Ally, 2008, p. 33). One finding of my study that did not fit into the constructivist was the individual design of the online class. Constructivists suggest that collaboration should be embedded in online classes to promote "initiative, creativity, and critical thinking" (Palloff and Pratt, 2005, p.6). Participants of my study reported that their online classes were entirely individual in nature. Justin explained that if you didn't understand the explanation given in the online class, you had to figure it out on your own. In fact, participants recommended that adding collaborative assignments would improve their online classes.

Constructivists believe people learn from their experiences (Creswell, 2009) and that a person's perceived world may be different than the actual physical world (Patton, 2002). The central research question of this study was; what are secondary CTE students' views of their experiences with current online classes? Since the central research question

investigated 12 student participants' perception of their experiences with online learning, the framework of my study incorporated constructivist theory. My study results reflected constructivist design by investigating student views of their online learning experiences. Patton (2002) explained that constructivists expect different participants to have different views of the same event. With this in mind, my study embedded three participants from each of the four career clusters in a purposeful sample. Participants provided data through personal interviews, a focus group interview, and observations to provide a rich description of online class experiences.

Although my study used constructivist theory, the online classes at the site did not display constructivist attributes. Student participants reported working individually in a text-based online environment. Palloff and Pratt (2005) stated that collaboration is the backbone of online constructivist design. Sandy indicated that she learned best through, "interaction, just it really helps me to learn when I'm working with other people." Kelly concurred suggesting that she learned best through "Group projects." Luke was the only participant who reported using collaboration in his online class, however, it was not a design feature of the course. Luke and a classmate would discuss online experiences outside of class, and the collaboration helped build student confidence. Student participants stated that they learned better when they worked collaboratively; however, collaboration was not included in current secondary online class design.

Recommendations

This case study with multiple units of analysis investigated secondary CTE students' experiences with online classes by examining 12 students at a career center in

Ohio as well as the paraprofessional in charge of the hybrid classroom environment. Recommendations based on the results of this study are provided for instructional designers, secondary CTE students, parents of secondary CTE students, CTE councilors and administrators, policymakers, and paraprofessionals or teachers administrating a hybrid classroom for secondary CTE students (see Table 5).

Recommendations for Practice

Summary of the Findings

The results of this study suggest implications for instructional designers designing online classes for secondary CTE students, secondary CTE students, parents of secondary CTE students considering taking online classes, secondary CTE councilors and administrators, policymakers, and paraprofessionals or teachers administrating a hybrid classroom for secondary CTE students. Reading and writing skills are essential for secondary online class completion. (Brenner, 2007; Picciano & Seaman, 2007; Roblyer et al., 2008; Ronsisvalle & Watkins, 2005; Wallace, 2009). Participants in my study revealed that their online classes were primarily text-based. Many of the participants suggested that their least favorite subject in school was ELA because they found it both challenging and they lacked the skills required for academic success. Participants indicated that online lessons consisted primarily of reading. Participants read online text more than any other activity in both student observations. A few participants identified the text-based design of their online class as a positive experience. Study results suggested the following recommendations.

Instructional Designers

A disconnect exists between current secondary online class design and secondary CTE students' preferred learning style. Secondary CTE students view their experiences with online classes as self-paced text-based classes assessed through traditional online assessments that are more academically rigorous than traditional classes. Instructional designers should incorporate hands-on activities, group work, collaborative activities, simulations, and embed multiple explanations when designing online classes for secondary CTE students. Students in my study revealed they enjoyed their favorite subject because of the curriculum content and the relevance to the student's future. Since the state dictates subject matter content through graduation requirements, online classes designed for secondary CTE students need to embed relevance to their future. The paraprofessional revealed that the current online classes were too academic in nature and suggested that they could be improved if they incorporated CTE concepts and ideas. The paraprofessional also suggested that the online classes could incorporate a culminating project at the end of the course instead of relying only on a traditional culminating test.

Online class designers need to be aware of technology issues with online test taking. Levi was frustrated because she did not have enough time to complete her tests and had to turn the computer off and lose all of her work. Other participants in my study reported that their online classes allowed them to save their tests and finish them at a later time. Every online class designed for secondary CTE students should allow students to save their tests.

Instructional designers designing online classes for secondary CTE students should incorporate hands on learning, modeling, cooperative learning, and project-based learning to facilitate secondary CTE student learning styles. Secondary online CTE classes also need to allow students to save their tests, include alternate methods of summative assessments such as projects, and incorporate CTE concepts and ideas.

Secondary CTE Students

There were many findings in my study that can be used by secondary CTE students considering taking an online class. Secondary CTE students enrolling in online classes should expect to take notes, read, listen to motivating music, and maintain motivation to achieve successful online class completion. Additionally, students should utilize their phone as an educational tool to further assist their online learning. Participants in my study also shared positive experiences with completing online classes which included, self-paced learning, text-based design, assessment design, and graphics, tables, and simulations. Participants struggled with motivation, assessments, content, limited assistance, and reading in their online classes. Students identified Math as a challenging online subject. Strategies students recommended for successful online course completion were note taking, using their phone, and student motivation. For example, Kelly suggested listening to “slow concentration music that helped me focus.”

Parents of Secondary CTE Students

Parents of CTE students considering taking an online class should base decisions on research-based traits that include self-motivation, self-monitoring, previous successful academic work, positive work ethic, and good attendance instead of their students' CTE

program. The purposeful sample of my study assumed that each of the career clusters attracted a different style learner; however, findings reported no difference in learning style between career clusters. All 12-student participants in the study expected to complete their online classes. The paraprofessional also suggested that there was no difference in learning style between students enrolled in different career clusters. Ms. Rose, stated “it just depends on the individual themselves.... not so much as to what cluster they’re in.... depends on their individual like background.” Since there is no difference in learning style between career clusters, it is recommended that parents base online enrollment decisions on individual student strengths instead of CTE program enrollment. The strengths identified in the literature included self-motivation, self-monitoring, previous successful academic work, positive work ethic, and good attendance, (Kerr, 2011; Murphey & Rodriguez-Manzanares, 2009a; Rockman, 2007).

Career Technical Education Councilors and Administrators

All but one of the CTE student participants in my study were highly motivated to complete their online class because of graduation. Since Levi had deferred graduation and was the only participant taking an elective class, her experiences with her online class were different from the other participants. The paraprofessional suggested that some features the current online courses offered at the site were not utilized. Ms. Rose explained that the online classes were designed to be more interactive but that the administration limited the features. She suggested that the current online classes could be used for more than just credit recovery and could incorporate projects, but these features would take longer to complete.

Student participants recommended that students be placed in their online course earlier so that they had more time to finish their class without feeling rushed. Brittany thought students should be placed in the online classes earlier because many of her peers had multiple classes to complete before graduation. She suggested enrolling students in online classes over the summer before their senior year. Many participants reported needing more time to complete their online classes. Levi identified a peer who was way behind in the online class and was trying to complete the class at home. Chelsea admitted that she still had to complete her online class in the 15 days before graduation.

Administrators should provide a hybrid class environment that includes computer access, a set time, and a paraprofessional to assist online class completion. Additionally, adequate time for successful completion of online classes is necessary. Administrators should also investigate current online classes to ensure full use of the technology is used to enhance student learning.

Policymakers

The results of my study suggested the following recommendation for decision makers. Policymakers should ensure that all classes that receive the same credit align to the same course of study and curriculum. Some participants reported that academic content in their online class did not align with the content of their face-to-face class. Additionally, many students reported that their online classes investigated subject matter content in more detail than their previous traditional face-to-face classes. Brittany questioned why the curriculum of the two types of classes was different because the State regulates the standards. Local school boards approve the curriculum; however, the State

aligns it through required graduation tests. The curriculum offered in the face-to-face class needs to align to the curriculum offered in the online class when both classes earn the same credit.

Paraprofessionals or Teachers Administrating a Hybrid Classroom for Secondary CTE Students

There are a variety of ways to administer a hybrid classroom environment. There were many revelations in my study that are important to paraprofessionals and teachers designing a hybrid classroom for secondary CTE students. Student participants reported that having both a set location and time and a paraprofessional in the room to keep them on task and provide additional assistance helped them achieve online course completion. Participants stated that depending on the noise level of the hybrid classroom; it could be distracting which did not assist their online classwork. Even though student participants identified that having a paraprofessional in the room assisted in successful online course completion, they lamented that there was not additional content specific help available. Paraprofessional and teacher professional development for administrating hybrid online CTE classrooms should include technology training, multiple subject matter content instruction, student motivation strategies, and classroom management training.

Table 5

Recommendations of Study

Stakeholders	Recommendations
Instructional Designers	Incorporate hands on learning, modeling, cooperative learning, and project based learning into secondary CTE online course design.
Secondary CTE Students	Take notes, read, listen to motivating music, use their phone as an educational tool, and maintain motivation.
Parents of Secondary CTE Students	Consider online class enrollment decisions on individual student strengths instead of what career cluster the student is enrolled in.
CTE Counselors and Administrators	Career centers should provide a hybrid class environment that provides computer access, a set time, and a paraprofessional to assist students. Enroll students in online classes as early as possible to ensure adequate time for successful online class completion. Ensure current online classes utilize full use of technology to enhance student learning.
Policymakers	Ensure curriculum offered in the face-to-face class align to the curriculum offered in the online class when both classes earn the same credit
Paraprofessionals or Teachers Administrating a Hybrid Classroom for Secondary CTE Students	Professional development for paraprofessionals/ teachers in charge of a secondary online CTE classroom should include technology training, multiple subject matter content instruction, student motivation strategies, and classroom management training.

Conclusion

Secondary CTE is an important part of education in the United States enrolling either 14 million students (The National Association of State Directors of Career Technical Education Consortium, 2014b), or over 1 million students depending on the source used (Thompson et al., 2012). The problem addressed in this study was that many secondary CTE students currently enrolled in online classes did not demonstrate the traits previously identified through research as necessary for online course success. The four research questions were; (a) investigating what secondary CTE students' views of their experiences with online courses were, (b) what online instructional design features CTE students identify help them in online course success, (c) what online instructional design features were identified that do not assist online CTE students succeed in an online course, and (d) what features in a hybrid classroom environment assist secondary CTE student success?

Data were collected from 12 student participants through two individual interviews, a focus group interview and two observations. Also, the paraprofessional in charge of the hybrid classroom was interviewed once and observed twice. I conducted all interviews, observations, and coding.

Secondary CTE students reported that they learned best through hands on learning, collaboration, projects, and project based learning. Secondary CTE students view their experiences with online classes as self-paced text-based classes assessed through traditional online assessments that are more academically rigorous than traditional classes. Participants identified the following strategies for online course

completion; taking notes, staying motivated, listening to music, having someone read to you, and having a paraprofessional in the room for assistance. The paraprofessional reported many strategies to assist online CTE students including; reading to students, taking notes, interpreting directions, and answering questions. High School graduation was a common motivator with all but one participants in this study. That participant was a deferred graduate who deferred graduation to continue their career technical training.

This chapter contained recommendations based on the findings of this study. Online classes designed for secondary CTE students should include both collaboration and hands-on projects. Online CTE students are successful when provided a hybrid classroom that includes a set time, a paraprofessional, and technology. The online curriculum should align to the face-to-face course. Secondary CTE students need adequate time to complete online classes. Successful online secondary CTE student strategies included note taking, reading, educational cell phone use, and self-motivation. Online instructional design for secondary CTE students should align with their unique learning characteristics.

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Appendix A: First Individual Interview Questions

Describe how you learn best in a traditional class.

What types of activities help you learn in a traditional class?

What class/ classes did you take online?

What do you expect a typical online lesson to be like?

What types of activities do you expect to excel at in your online class?

What types of activities do you expect to struggle with in your online class?

What aspects within your online classes do you find most difficult?

What activities do you find the most helpful in a traditional (face to face) class? Why?

What activities do you find the least helpful in a traditional (face to face) class? Why?

Do you expect that the hybrid environment will assist you in successful completion of your online class? Why?

What do you expect class will be like in the hybrid classroom?

Have you taken an online class before? Yes/ no

If you have taken an online class before, can you identify any strengths and weaknesses with them? Explain why you identified each one as a strength or weakness

If you have not taken an online class before, explain why you have never taken one?

What are your favorite subjects in school? What do you like about them?

What are your least favorite subjects in school? What do you dislike about them?

Why did you decide to take this online class?

What are your first impressions with your online class?

What aspects do you expect to assist you in course completion?

What aspects do you expect to struggle with?

Is there anything else you would like to share at this time?

Appendix B: Second Individual Interview Questions

How has your online class compared to traditional classes you have had in the past in the same subject?

How was the online class different than a traditional class?

Do you expect to successfully complete your online course?

Describe a typical online lesson.

What are some of the activities in your online class that assisted learning the material?

Explain some things that were helpful to you in your online course work.

Explain some things that were difficult to you in your online course work.

Identify the most helpful part of your online learning experience and why?

Identify the most difficult part of your online learning experience and why?

Did you find the hybrid environment assisted you in your online class? Why or why not?

Describe how hybrid classroom works.

If you were to list the strengths of this online class, what would they be? Why?

If you were to list the weaknesses of this online class, what would they be? Why?

If you could change anything about this online class, what would it be? Why?

Is there anything that could be done to make this class better online? Explain.

Do you plan on taking another online class? Why or why not?

Are there any subjects you would recommend to other students to take online? Why?

Are there any subjects you would not recommend to other students to take online? Why?

What would you tell a student considering taking multiple online classes at the same time? Why?

Is there anything else about your online experience you would like to add?

Appendix C: Focus Group Interview Questions

Describe a typical online lesson.

Describe some of the features you enjoy about online learning?

How effective was the online environment in helping you understand the material? Why?

Explain how the different features of online instruction helped you learn.

What would you change about your online learning experience? Explain why you would change this.

Are there any common experiences you shared in your online learning experience?

Did anyone struggle with the online class? Explain why you felt you were struggling.

What strategies did you use to help you succeed (to make it easier) in your online class?

Explain some of the differences between your online class (es) and your previous traditional face to face experiences.

If one of your friend's were considering taking an online class, what advice and/ or recommendations would you give them?

Were there any online strategies (lessons) that helped you learn the material better than others? Describe the lesson.

Will you take another online class? Why or why not.

Describe the environment of your online class, did this environment help or hurt your experience. Why or why not?

Do you have anything else you would like to add about your experiences?

Appendix D: Paraprofessional Interview Questions

Explain a students' typical hybrid class period.

What types of activities are students expected to do?

What types of assistance do you provide for students?

How do the students' online activities differ between courses (For example Algebra compared to World Literature)?

What types of activities do students struggle with?

What types of activities do students excel at?

Have you observed any differences in learning styles between students of different clusters?

How frequently do students ask for help?

How does the hybrid environment assist student academic achievement?

Are there students who take multiple online classes? If so, how would you describe their experiences?

If you could redesign the online class to better serve secondary Career Technical Students (CTE), what would you suggest?

Do you have any additional insight to share?

Appendix E: Paraprofessional Participant Consent Form

You are invited to take part in a research study investigating good and bad experiences High School students attending Career Centers have with online classes. The study will collect student experiences with current online classes. The study will also look at how the hybrid environment assists online students. The researcher is inviting paraprofessionals assigned to an online class this semester at Penta Career Center to be in the study. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named David Harms, who is a doctoral student at Walden University. You may already know the researcher as a social studies instructor, but this study is separate from that role.

Background Information:

The purpose of this study is to collect positive and negative experiences High School students attending Career Centers have with online classes. The study will collect student experiences with current online classes through interviews and observations. Interviews will be recorded, Study results will help online course designers create classes that better engage High School students attending Career Centers.

Procedures:

If you agree to be in this study, you will be asked to:

- _____ a 45 minute individual interview at the conclusion of the quarter
- _____ a 45 minute classroom observation

All interviews will be conducted during after school professional development time so that you will not miss any academic instruction.

Here are some sample questions:

Explain a students’ typical hybrid class period.

What types of activities are students expected to do? What types of assistance do you provide for students?

How do the students’ online activities differ between courses (For example Algebra compared to World Literature)?

What types of activities do students struggle with? What types of activities do students excel at?

Have you observed any differences in learning styles between students of different clusters? How frequently do students ask for help?

How does the hybrid environment assist student academic achievement?

Voluntary Nature of the Study:

This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Penta Career Center will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as stress, fatigue, or becoming upset. Being in this study would not pose risk to your safety or wellbeing. While participating in this study has very little risk, there is always a risk of confidentiality. I will take every precaution to maintain the confidentiality of the participants in the study. I will keep all data in an encrypted file on my computer and hard copies will be stored in a locked file cabinet.

Payment:

There is no compensation for participation in this study.

Privacy:

Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by keeping all electronic data in an encrypted file on the researcher's computer. All other data will be stored in a locked file cabinet. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via email:dave.harms@waldenu.edu or by phone at: 419-346-8679. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is 12-11-14-0157613 and it expires on December 10, 2015.

The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Printed Name of Participant

Date of consent

Participant's Signature

Researcher's Signature

Appendix F: Participant Consent Form

You are invited to take part in a research study investigating good and bad experiences High School students attending Career Centers have with online classes. The study will collect student experiences with current online classes. The study will also look at how the hybrid environment assists online students. The researcher is inviting students taking an online class this semester at Penta Career Center to be in the study. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named David Harms, who is a doctoral student at Walden University. You may already know the researcher as a social studies instructor, but this study is separate from that role.

Background Information:

The purpose of this study is to collect positive and negative experiences High School students attending Career Centers have with online classes. The study will collect student experiences with current online classes through interviews and observations. Interviews will be recorded, Study results will help online course designers create classes that better engage High School students attending Career Centers.

Procedures:

If you agree to be in this study, you will be asked to:

- _____ a 45 minute individual interview at the beginning of your hybrid class
- _____ a 45 minute individual interview at the conclusion of your hybrid class
- _____ a 45 minute observation conducted during your hybrid class
- _____ a 45 minute focus group interview at the conclusion of your class

All interviews will be conducted during Student Success time so that you will not miss any academic instruction.

Here are some sample questions:

Describe how you learn best in a traditional class.

What types of activities help you learn in a traditional class? What class/ classes did you take online?

Describe a typical online lesson.

What are some of the activities in your online class that assist in learning the material? Explain what is most helpful to you in your online course work.

What aspects within your online classes do you find most difficult? What was the single most helpful part of the lesson and why? What was the single hardest part of the lesson and why?

How does the hybrid environment assist you in your online class?

Describe your typical day in the hybrid classroom?

Voluntary Nature of the Study:

This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Penta Career Center will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as stress, fatigue, or becoming upset. Being in this study would not pose risk to your safety or wellbeing. While participating in this study has very little risk, there is always a risk of confidentiality. I will take every precaution to maintain the confidentiality of the participants in the study. I will keep all data in an encrypted file on my computer and hard copies will be stored in a locked file cabinet.

Payment:

There is no compensation for participation in this study.

Privacy:

Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by keeping all electronic data in an encrypted file on the researcher's computer. All other data will be stored in a locked file cabinet. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via email: dave.harms@waldenu.edu or by phone at: 419-346-8679. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is **12-11-14-0157613** and it expires on **December 10, 2015.**

The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Printed Name of Participant

Date of consent

Participant's Signature

Researcher's Signature

Appendix G: Student Observation Schedule

Observation	Frequency
Students reading online text	
Students reading traditional text	
Students typing	
Students writing (traditional paper pencil)	
Students watching online video	
Students participating in an online simulation	
Students participating in a traditional hands-on activity	
Students taking an online assessment	
Students asking paraprofessional a question	
Student off task	
Other behavior (please specify)	

Appendix H: Paraprofessional Observation Schedule

Observation	Frequency
Monitoring students at desk	
Monitoring students walking around	
Paraprofessional off task	
Answering student question	
Administrative activities	
Other behavior (please specify)	