A QUANTITATIVE STUDY EXPLORING LITERACY AND CAREER TECHNICAL EDUCATION INSTRUCTIONAL BELIEFS IN IDAHO HIGH SCHOOLS

A Dissertation

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AUTHORIZATION TO SUBMIT

DISSERTATION

This dissertation of Angela Sue Edelblute Neal, submitted for the degree of Doctor of Philosophy with a major in Educational Leadership and titled "A Quantitative Study Exploring Literacy and Career Technical Education Instructional Beliefs in Idaho High Schools" has been reviewed in final form. Permission, as indicated by the signatures and dates given below, is now granted to submit final copies.

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ABSTRACT

The purpose of this quantitative study was to examine the differences in career-technical education (CTE) teachers' educational beliefs and attitudes toward teaching reading in CTE content classrooms in Idaho high schools when both CTE content area and teacher certification levels were considered. The importance of this study stems from teachers working with students who lack the skills necessary to meet the demands of reading in high school, preparing to read in college, and continuing on to workplace literacy needs. A quantitative study of 291 Idaho high school career-technical education business technology, engineering technology education, family and consumer sciences, and skilled and technical sciences teachers was conducted using survey which combined Silvernail's Educational Beliefs Questionnaire (EBQ) and Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms. The study analyzed teachers' attitudes and beliefs toward teaching reading in career technical education content classrooms as measured by the Idaho High School Literacy Survey. Quantitative methods were used, including descriptive analysis using Chi-square and Analysis of Variance (ANOVA). A statistical significance was found in skilled and technical sciences teachers scoring higher than both business education and family and consumer sciences teachers on the traditionalist educational philosophy subscale. A statistical significance was found in teachers with limited occupational specialist and provisional certificates scoring higher on the traditionalist subscale than teachers with standard secondary teaching certificates. No significant difference was found in Vaughan's Scale scores by content area. A significant difference was found in Vaughan's Scale score by teacher certification.

LIST OF ABBREVIATIONS

ACT	American College Testing Corporation
ACTE	Association for Career & Technical Education
BMM	Business, Management, and Marketing
BPA	Business Professionals of America
CCSS	Common Core State Standards
CTE	Career-Technical Education
EBQ	Educational Beliefs Questionnaire
ETE	Engineering Technology Education
FCCLA	Family, Career and Community Leaders of America
FCS	Family and Consumer Sciences
ICCSS	Idaho Common Core State Standards
ISDE	Idaho State Department of Education
IDPTE	Idaho Division of Professional-Technical Education
NAEP	National Assessment of Educational Progress
NASDTEc	National Association of State Directors of Career Technical Education Consortium
NCLB	No Child Left Behind Legislation
OECD	Organisation for Economic Development
PISA	Programme of International Study Assessment
PTE	Professional-Technical Education (aka CTE)
QAR	Question-Answer-Relationships
SES	Socio-Economic Status
SkillsUSA	SkillsUSA Champions at Work student organization

STM	Scale to Measure Attitudes Toward Teaching Reading in the Content Classroom
STS	Skilled and Technical Sciences
TSA	Technical Skills Assessments
TSA	Technology Student Association

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Chapter I

Introduction

> As your eyes pass over these little squiggle marks, consider the amazing feat you're accomplishing. Small ink marks are being transferred from the page, through your eyes, to your brain. Once there, your brain makes a series of connections such that you should make sense of the ideas on the page. It's amazing really, and it's how we learn. Humans learn through language. When we read, write, speak, listen, and view, we learn. It's really that simple. (Fisher & Frey, 2012, preliminary pages)

In the United States, 4th graders are historically reading and writing at levels that place them among the best in the world (Association for Career and Technical Education [ACTE], 2009; Snow, 2009; Weldon, 2010). These students could be on track to attain high literacy skills. However, as students move through the American educational system, their growth stagnates with regard to literacy levels. By the time students are in high school, they perform at much lower levels than their international counterparts with 35% of 12th graders considered proficient in reading and the number of proficient readers even less for students with disabilities, English language learners, and minorities (ACTE, 2009).

The need to address low literacy rates is urgent (ACTE, 2009; Greenleaf & Hinchman, 2009; Marzano, 2005). High school teachers receive little formal instruction on how to teach reading and comprehension skills (ACTE, 2009; Biancarosa & Snow, 2006; Jacobs, 2008; Riley, 2013; Salinger, 2011). There also seems to be a disconnect between what students read in high school, literature for example, and the informational and technical reading they need to prepare for successful entry into college and careers (ACT, 2006; Biancarosa & Snow, 2006).

Teacher preparation programs are responsible for training teachers and preparing them to support student learning. Prior to graduating from a postsecondary teacher preparation program,

future secondary educators, regardless of content area, should receive instruction on adolescent literature, how literature addresses issues of diversity, and how to implement lessons to effectively use instructional strategies to integrate adolescent literature (O'Connor, 2012; Ruiz, Many, & Aoulou, 2011).

Career-Technical Education (CTE), formerly known as vocational education, prepares youth and adults for careers. In Idaho, CTE is known as Professional-Technical Education (PTE), but is synonymous with CTE programs and expectations. CTE is in a position to help solve the adolescent literacy crisis. CTE programs are organized in the National Career Clusters® Framework which was developed by the National Association of State Directors of Career and Technical Education Consortium (NASDCTEc). The 16 Career Clusters provide essential knowledge and skills for each cluster:

- Agriculture, Food & Natural Resources
- Architecture & Construction
- Arts, A/V Technology & Communications
- Business Management & Administration
- Education & Training
- Finance
- Government & Public Administration
- Health Science
- Hospitality & Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections & Security
- Manufacturing

- Marketing
- Science, Technology, Engineering & Mathematics
- Transportation, Distribution & Logistics (NASDCTEc, 2014)

CTE teachers expose students to a variety of content-area reading that is of interest to them (ACTE, 2009; Anderson, 2008; Anderson, 2013; Brandt, Valent, & Browning, 2013). Students who are interested in the content tend to become more engaged, connected, and willing to participate in reading at rigorous levels (ACT, 2006). CTE teachers may believe integrating academics into their content area is beneficial to students (Bottoms, 2008; Gregson & Sturko, 2007; Wallace, Sheffield, Rennie, & Venville, 2007). However, CTE teachers report feeling inadequate and ill prepared to deliver instruction and provide remediation in the core academic subjects. CTE teachers need to receive ongoing, sustained professional development if they are to change their classroom behavior (Anderson, 2008; Bottoms, 2008).

Statement of the Problem

Many high school students lack basic literacy skills necessary to successfully complete high school and move on to college and careers. As the focus to prepare students to be college and career ready takes center stage, teachers must be prepared to provide rigorous and relevant instruction (Holzer & Monthey, 2013; Marsella, 2010; Meeder & Suddreth, 2012). The purpose of this quantitative study is to investigate CTE teachers' educational philosophical orientations as well as their attitudes and beliefs toward teaching reading in their CTE content areas.

CTE teachers are poised to integrate academics and CTE content to assist students in learning the literacy skills necessary for college and workplace readiness (ACTE, 2009; Anderson, 2012; Brand, Valent, & Browning, 2013; Clark, 2005; Gordon, Yocke, Maldonado, & Saddler, 2007; Meeder & Suddreth, 2012; O'Connor, 2012; Spindler, 2010; Taylor, 2001). CTE educators possess the self-efficacy to integrate academic literacy curriculum into their CTE content areas;

however, they lack the necessary knowledge and professional development support to do so (Brand, et al.; Drage, 2010; Fairbanks, Duffy, Faircloth, He, Levin, Rorh, & Stein, 2010; Greenleaf & Hinchman, 2009; Gregson & Sturko, 2007; Hathaway, 2009; Holzer et al.; Jacobs, 2008; Snow, 2009; U.S. Department of Education, 2009; Wilson & Curry, 2011).

CTE teachers are being asked by administrators and legislation to include academic content in the CTE curriculum and to implement high-stakes testing (Bottoms, 2008; Sheehan, 2012; White & Boling, 2013). In order for this educational change to be successful, teachers' individual belief systems, based on their attitudes, beliefs, and values (Pajares, 1992), need to be considered. Teachers' attitudes and beliefs impact educational change, contribute to how and what information is taught in the classroom, and influence student learning which leads to improved high school student literacy proficiency (Adams, 2011; Drage, 2010; Fang, 1996; Hathaway, 2009; McAtee, 1977).

Background to the Study

In 2009, the Idaho State Department of Education, in conjunction with other states, developed updated standards in English language arts and mathematics (Idaho State Department of Education [ISDE], 2010). The goal was to reduce the large number of academic standards into fewer, succinct, and comparable standards (ISDE, 2010). Tom Luna, Idaho Superintendent of Public Instruction from 2007 to 2014, reported that Idaho students made adequate academic progress through grades K-12, many of those same students graduate from high school ill equipped to be successful in postsecondary education or the workforce (ISDE, 2009). As a result, Luna joined forces with other states and the National Governors Association Center for Best Practices (NGA Center) and Council of Chief State School Officers (CCSSO) to participate in the Common Core State Standards (CCSS) Initiative (ISDE, 2009). Idaho voluntarily adopted the CCSS standards as their own Idaho Core Standards (ICS) (ISDE, 2009). Beginning in 2011-2012, and continuing into the 2012-2013 school years, the state provided professional development to Idaho

teachers and administrators to familiarize them with the ICS. Schools were required to implement the teaching of ICS during the 2013-2014 school year. The culminating four-year implementation program included the launch of Smarter Balanced Assessment (SBAC) standardized tests on ICS as a pilot in 2014-2015 (ISDE, 2009).

Students in CCSS participating states will be expected to take a rigorous high stakes test (see Appendix A). While Idaho chose the SBAC which includes reading increased text difficulty and complexity (ISDE, 2009), other states chose to implement the Partnership for Assessment of Readiness for College and Careers (PARCC). In order for students to learn and ultimately perform well on high stakes tests, they must be literate (Matsumura & Wang, 2014; Spencer, Garcia-Simpson, Carter, & Boon, 2008; U.S. Department of Education, 2014). The term literacy means more than simply the ability to read. Students must be prepared to read fluently, comprehend text, and analyze complex texts including electronic communication (CCSSO, 2010; Schneider & Foot, 2013, Wendt, 2013). Students gather information from many sources. As such, they must be able to read, write, and communicate. However, literacy levels in the United States have declined in the past 20 years and educators need to focus on solutions to this problem (Hyslop, 2010; Weldon, 2010).

Changes to state requirements for high school graduation, the creation of Common Core State Standards, and the No Child Left Behind Act of 2001 create an enhanced awareness of the need for improved literacy instruction (Fairbanks et al.; Stein, 2010; Hathaway, 2009; Jacobs, 2008; Snow, 2009; U.S. Department of Education, 2011; Weldon, 2010; Wendt, 2013). The national focus on literacy provides a challenge for secondary CTE teachers to integrate core academics into content classrooms (Anderson, 2008; Fletcher, 2009; Fletcher, 2006; Gordon et al.; Lakes, 2007; Wendt, 2013; Wexler, Vaughn, & Roberts 2010; White & Boling, 2013). An important challenge stems from CTE teachers' attitudes and beliefs of whether or not they are equipped to integrate literacy instruction into CTE content areas. CTE teachers who completed a

four-year teacher education preparation program usually take one course in teaching content reading. CTE teachers who enter the teaching field through industry experience apply for a limited occupational specialist teaching certificate and have three years to satisfactorily complete or show competencies in four of the following college courses: Principles/Foundations of Occupational Education; Career Pathways and Guidance; Analysis, Integration and Curriculum Development; Measurement and Evaluation; and Methods of Teaching Occupational Education (IDPTE, 2014).

One purpose of integrating academics and CTE curriculum is to improve student achievement and to prepare students to go on to postsecondary education or enter the workforce. CTE programs have the ability to teach literacy skills in a contextual manner which helps keep students in school (Bottoms, 2008; Marsella, 2010; Middleton, 2012; Turnipseed, 2008). Reluctant readers can be engaged when real world and contextually meaningful documents are presented to them (Greenleaf & Hinchman, 2009; Hyslop, 2010).

Research Questions

Teachers' beliefs and attitudes influence student learning, which leads to improved high school student literacy proficiency (Adams, 2011; Bawden, Buike, & Duffy, 1979; Drage, 2010; Hathaway, 2009). The purpose of this quantitative study was to examine the differences in CTE teachers' educational beliefs and their attitudes toward teaching reading in their business education, engineering technology education, family and consumer sciences, and skilled and technical sciences classrooms in Idaho high schools when both CTE content area and teacher certification levels were considered. This study examines the following questions:

Research Question 1. Is there a difference in the three subset scores of the Educational Beliefs Questionnaire (EBQ) between teachers in each of four high school CTE content areas and between Idaho teacher certification levels?

Research Question 2. Is there a difference in teacher attitudes about integrating CCSS literacy for technical subjects in Idaho high schools as measured by Vaughan's Scale to

Measure Attitudes toward Teaching Reading in Content Classrooms, between teachers in each of the CTE content areas and between Idaho teacher certification levels?

Description of Terms

Association of Career Technical Educators (ACTE). Large national education association committed to the improvement of education to prepare youth and adults for careers in emerging occupations. ACTE also provides networking opportunities and support to CTE teachers (ACTE, 2013).

Career-Technical Education (CTE). An education system which prepares youth and adults for a wide range of high-skill, high-wage, and high-demand careers, formerly known as vocational education (ACTE, 2013). CTE is the more commonly used than professional-technical education (PTE) or vocational education which mean the same thing.

Common Core State Standards (CCSS). "A set of high-quality academic standards in mathematics and English language arts/literacy (ELA)," as defined by Corestandards.org. CCSS focus on core conceptual understandings and procedures which communicate what students are expected to know and be able to do at each grade level (Common Core State Standards Initiative, 2014, retrieved from www.corestandards.org).

High school business technology teacher. A certified teacher who is qualified to teach in an approved Idaho Division of Professional-Technical Education Business Technology program in grades 9-12. Business technology programs include courses such as Accounting I-III, Business Ownership, and Computer Application I-III (IDPTE, 2014).

High school engineering technology education teacher. A certified teacher who is qualified to teach in an approved Idaho Division of Professional-Technical Education Engineering Technology Education (ETE) program in grades 9-12. ETE programs include courses such as Introduction to Engineering Design, Principles of Engineering, and Software Development and Programming (IDPTE, 2014).

High school family and consumer sciences teacher. A certified teacher who is qualified to teach in an approved Idaho Division of Professional-Technical Education Family and Consumer Sciences (FCS) program in grades 9-12. FCS programs include courses such as Teen Living, Leadership, Nutrition and Foods, Career and Personal Development, Parenting and Child Development, and Adult Living (IDPTE, 2014).

High school skilled and technical sciences teacher. A certified teacher who is qualified to teach in an approved Idaho Division of Professional-Technical Education Skilled and Technical Sciences (STS) program in grades 9-12. STS programs include courses such as Automotive Technology I-III, Collision Repair I-III, and Welding I-III (IDPTE, 2014).

Idaho Division of Professional-Technical Education (IDPTE). IDPTE is the state agency responsible for secondary, postsecondary, and adult professional-technical programs delivered throughout Idaho public school districts and to the six technical colleges. IDPTE funds technical programs in grades 9 through 12 (IDPTE, 2014).

No Child Left Behind (NCLB). In 2001, President George Bush signed into law the NCLB Act which served as reauthorization of the Elementary and Secondary Education Act of 1965. The intent of NCLB provided for increased accountability of schools, districts, and states. NCLB required schools to report student achievement and to meet annual yearly progress (AYP) objectives (U.S. Department of Education, 2001).

Professional-Technical Education (PTE). Also referred to as CTE, an education system which prepares youth and adults for a wide range of high-skill, high-wage, high-demand careers. PTE was formerly known as vocational education (ACTE, 2013).

Significance of the Study

This study contributes to the understanding of high school CTE teachers' general educational beliefs and attitudes toward teaching CCSS literacy for technical subjects in their business education, engineering technology education, family and consumer sciences, and

skilled and technical sciences classrooms when both CTE content area and teacher certification levels are considered (Adams, 2011). Attention to teachers' attitudes and beliefs can inform educational practice (Hathaway, 2009; Pajares, 1992).

CTE teachers across the nation are seeking solutions to better integrate academics, specifically literacy and reading, into their CTE content classrooms. Benefits that will result from the completion of this study include improved professional development opportunities to assist CTE teachers in integrating literacy and reading strategies into their CTE content areas (Anderson, Harrison, & Lewis, 2012; Bottoms, 2008; Drage, 2010; Greenleaf & Hinchman, 2009; Gregson & Sturko, 2007; Park, Santamaria, van der Mandele, Keene, & Taylor, 2010; Shriner, Schlee, & Libler, 2010). Program managers from the Idaho Division of Professional-Technical Education expressed an interest in the results of this study. Based on research results, four of the seven state PTE program managers requested professional development workshops for teachers in their CTE subject areas. The significance of the answers to the research questions may reach beyond the state boundaries of Idaho.

Consumers of the dissertation will include CTE teachers and administrators from across the United States. Specifically, based on answers to the research questions, the researcher will better understand the baseline attitudes and beliefs of CTE teachers regarding integration of literacy and reading instruction into their content areas. Armed with this information, the researcher will have the opportunity to create professional development workshops to assist CTE teachers at the school district, state and national levels.

Unique advantages available to consumers of this research include a better understanding of CTE teachers' attitudes and beliefs toward teaching literacy in their content classrooms. Research shows a positive correlation of the impact teacher professional development has on student achievement (Carpenter, Fennema, Peterson, Chiang, & Loef, 1989; Cole, 1992; Duffy et al., 1986; Marek & Methven, 1991; McCutchen, Abbott, Green,

Beretvas, Cox, Potter, Quiroga, & Gray, 2002; McGill-Franzen, Allington, Yokoi, & Brooks, 1999; Saxe, Gearhart, & Nasir, 2001; Sloan, 1993; Tienken, 2003; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Those students are expected to perform well on the SBAC, or other state-approved assessments to demonstrate their command of the CCSS. Supporting teachers is the first step to supporting students.

Overview of Research Methods

Teachers' attitudes and beliefs contribute to how and what is taught in the classroom, which impacts student achievement (Fang, 1996). This research views teachers' attitudes and beliefs through the theoretical framework provided by Dr. David Silvernail in the Educational Beliefs Questionnaire (EBQ) which supports three subscales: traditionalism, progressivism, and romanticism. Silvernail (1992a) used the work started by Sirotnik (1979) and Kerlinger and Kaya (1959) to create the EBQ. The traditionalism subscale assesses beliefs relating to the importance of schools in transmitting knowledge, the school culture, value of repetitive practice, and authoritative role of teachers versus passive roles of students. The progressivism subscale measures beliefs about the role of schools in fostering intellectual development including the inquiry process of learning, and the role of the instructor as a facilitator rather than a transmitter of knowledge. Student involvement in learning is a factor in the progressivism subscale. The romanticism subscale measures the beliefs of the role of the school as valuing individual self-awareness and developing sources of new social ideas (Silvernail, 1992).

In addition to using Silvernail's EBQ as the theoretical lens for this research, teachers' attitudes toward teaching reading in career-technical education classroom and level of teacher certification were used to determine relationships of the subscales and attitudes toward teaching reading in the CTE content area. The purpose of this research was to examine CTE teachers' educational beliefs and attitudes toward teaching reading in their CTE content area as well as their level of teacher certification.

A quantitative study was selected to answer the research questions. Participants were Idaho high school CTE teachers representing four CTE content areas: business education, engineering technology education, family and consumer sciences, and skilled and technical sciences. A paper-pencil survey was distributed by the researcher and three University professors during the June 2014, Idaho Professional-Technical Educators' Annual Summer Conference for CTE teachers. The survey was also deployed in an electronic format to those CTE teachers who did not attend the conference.

The 43-item survey, the Idaho High School Literacy Survey (See Appendix B) merged Silvernail's (1992) Educational Beliefs Questionnaire (EBQ) and Vaughan's (1977) Scale to Measure Attitudes toward Teaching Reading in Content Classrooms. Both survey instruments have been previously validated and used in multiple published research studies (Adams, 2011; Hathaway, 2009; Rideout & Morton, 2007; Rideout & Windle, 2010; Silvernail, 1992; Vaughan, 1977). Idaho CTE high school business education, engineering technology education, family and consumer sciences, and skilled and technical sciences teachers in attendance at the Idaho Division of Professional-Technical Educators' annual conference participated in the self-reported survey. The 234 surveys collected on site at the conference were entered into a Qualtrics online survey instrument (See Appendix C). The conference was attended by 600 Idaho high school CTE teachers, 234 of whom voluntarily participated in the study and completed the Idaho High School Literacy Survey during their CTE content area meeting. Idaho CTE teachers were also invited to participate in the survey via an electronic link that was sent out by state program managers in September, 2014 (See Appendix D).

The following chapter outlines a review of the literature supporting this study. Topics include adolescent literacy rates in the U.S., achievement gap, college and career readiness, common core, career technical education, integration of literacy into CTE, student organizations, and teacher attitudes and beliefs. These topics support the purpose of this dissertation research.

Chapter II

The Literature Review

Introduction

Educational innovation and change has been a topic at the local, state, and national levels for many years. Federal legislation, such as NCLB of 2001, has attempted to improve the educational system in our country. If we are to prepare our youth to be competitive in the global marketplace, our educational system must be strong (Rojewski & Hill, 2014). Preparing students with the literacy skills necessary to be productive citizens is a worthy goal. Before looking forward to implement change, it is valuable to review prior research. A review of the literature reports the rate of adolescent literacy levels in the United States, importance of reading comprehension, as well as statewide and national literacy achievement gaps (ACTE, 2009; Biancarosa & Snow, 2006; Bottoms, 2008; Hathaway, 2009; Jacobs, 2008; Meeder & Suddreth, 2012). Also included in the review of literature are No Child Left Behind (NCLB) federal legislation, Common Core State Standards (CCSS), background and history of CTE, and college and career readiness expectation attitudes and beliefs of Career Technical Education (CTE) teachers toward integrating reading comprehension instruction in their content areas.

Based on increased accountability from both state and federal legislation for teachers to better prepare students to successfully pass standardized assessments and be college and career ready, it is important to have an understanding of CTE teachers' attitudes and beliefs toward integrating academics, specifically literacy and reading instruction, into their CTE content classrooms (Adams, 2011; Aguilera, 2011; Anderle, 2008; Anderson, 2013; Baxter, 2011; Bottoms, 2008; Clark, 2005; Gregson & Sturko, 2007; Meeder & Suddreth, 2012; Shriner et al., 2010; Taylor, 2001; Wendt, 2013; White & Boling, 2013).

Adolescent Literacy Levels in United States

For students to have the best possible opportunity to become successful citizens, they must master literacy fundamentals including reading fluency, comprehension, analysis of complex texts, and communication in social and electronic settings. Predominantly, research on literacy has focused at the elementary levels (Wendt, 2013). However, several authors report the need to focus on continued literacy instruction via integration and adaption of literacy in general academic curriculum (Fairbanks et al., 2010; Gillis, 2014; Hathaway, 2009; Jacobs, 2008; Rose, 2011; Snow, 2009; U.S. Department of Education, 2011; Weldon, 2010; Wendt, 2013).

Mandates such as NCLB and voluntary participation in CCSS call for students to achieve basic levels of mastery in reading and mathematics (Wendt, 2013). Due to a growing literacy gap, educators in all content areas need to provide interventions and integrate literacy instruction into their academic content areas. CCSS for literacy provide the opportunity for cross-disciplinary literacy instruction for all students. This means educators at all levels, including academic and CTE should provide instruction, high expectations, and differentiation for students in their classrooms (Gregson & Sturko, 2007; U.S. Department of Education, 2011; Wendt, 2013). Integrating literacy instruction in content areas in a contextual manner provides meaning and allows students to be interested in and motivated by instruction (Bottoms, 2008). Examples of strategies teachers may use to integrate literacy instruction in their content areas include: repeating reading procedures, using continuous reading methods, and providing peer pairing opportunities for high school students with reading disabilities to learn (Wexler et al.). Integrating literacy instruction into CTE content areas may contribute to reducing the achievement gap by adolescent readers in high school (Rasmussen, 2014).

Achievement Gap

Today's students are expected to navigate literacy in today's social context including global economic competition, Internet and social media, and policy that integrates literacy and

Internet into the classroom (Leu, Kinzer, Coiro, Castek, & Henry, 2013). Teachers are expected to prepare students to perform successfully when taking high-stakes standardized tests. Results from such tests bring the achievement gap into focus. Snow and Biancarosa (2003) report disparities in literacy achievement are a key factor in the gap. They also suggest the need for public and private funding organizations to coordinate research efforts and to provide the necessary support to assist educators in closing the literacy achievement gap of adolescent readers (Brooks-Yip & Koonce, 2010). In addition to closing the gap and helping students perform well on the high-stakes tests, preparing students to be proficient readers and consumers of data will set them on the path to postsecondary education and workplace preparedness.

Students in 4th to 12th grades lack the basic literacy skills needed to meet academic requirements in high school and are unprepared for the literacy levels they will need to be successful in postsecondary education and the workforce (Mellard, Woods, & Desa, 2012a & 2012b; Middleton, 2012; NAEP, 2013; Salinger, 2011; Strauss, 2013; Taylor, 2001; Weldon, 2010; White & Boling, 2013). Students must be prepared to read and comprehend complex texts, understand literacy demands in multiple content areas, and be able to navigate digital texts (ACT, 2009; Biancarosa, 2012; Riley, 2013; Shriner et al.; Wendt, 2013; Wexler et al.).

In 2013, the United States fell to sixth place in measurement of 4th grade students' reading literacy assessment scale scores (Aud, Wilkinson-Flicker, Kristapovich, Rathbun, Wang, & Zhang, 2013). The National Assessment of Educational Progress (NAEP) published The Nation's Report Card (2013) with the intent to inform the public about academic achievement of elementary and secondary students in the United States (U.S. Dept. of Education, 2013). The U.S. Department of Education supports the Institute of Education Sciences, which guides NAEP, a congressionally authorized project of the National Center for Education Statistics (NCES). NAEP reports the progress of students in 4th and 8th grades in subjects of mathematics and reading. Student performance on standardized tests were reported as basic, proficient, or

advanced. Reports from the 2013 National Assessment of Educational Progress (NAEP) indicated nationally, 35% of 4th grade public school students scored at or above the proficient level in reading. Similarly, 8th grade students scored at approximately same levels of proficiency. (Aud, et. al., 2013; U.S. Dept. of Education, 2013).

Based on NAEP reports, there is a need to close the literacy achievement gap of high school students. To do so, teachers need professional development training to better prepare them to support students by providing instruction, remediation, and support of literacy concepts (U. S. Department of Education, 2013).

College and Career Readiness

With the passage of Smith-Hughes Act in 1917, reauthorization of the Carl D. Perkins Federal Vocational and Technical Education Act in 2006, and NCLB Act of 2001, legislators placed increased importance on the need to prepare students to be college and career ready (Anderson, 2008; Fletcher, 2006; U.S. Department of Education, 2011).

CTE programs prepare students for high-wage, high-skill, and high-demand jobs in high-growth industries. Of the 38,000 employers who participated in the 2013 Manpower Talent Shortage Survey, 39% reported having difficulty finding qualified applicants to fill vacant positions. Specifically, employers in the U.S. are reporting a lack of qualified candidates with technical competencies in skilled trades. The top skilled positions experiencing a skill shortage in the United States:

1. Technicians
2. Sales Representatives
3. Engineers
4. Skilled Trades Workers
5. Production Operators
6. Accounting & Finance Staff

7. Secretaries, PA's, Administrative Assistants & Office Support Staff
8. Drivers
9. Laborers
10. Management/Executives

The U.S. Department of Labor Bureau of Labor Statistics provided an Economic News Release on October 7, 2014, which reported 4.8 million job openings in August 2014, which was up 200,000 jobs from the 4.6 million reported in July. The report of 4.8 million job openings is the highest reported since January of 2001. Industries suffering from unfilled positions include manufacturing, health care, and hospitality/food service (U.S. Department of Labor, 2014).

Georgetown University's Center on Economic and the Workforce (2013) published Recovery 2020, a report on job growth and education requirements through 2020. The report predicts:

- 31 million baby boomers retiring and 24 million new job openings which will lead to 55 million job openings in our economy
- 35% of jobs will require a minimum of a baccalaureate degree, 30% will require some form of postsecondary education, 36% will require a high school diploma
- Science, Technology, Engineering, and Mathematics (STEM), and healthcare professions and support will be among the fastest growing occupations which require postsecondary education
- Most jobs will require some form of postsecondary education
- Employers will hire individuals with critical thinking cognitive skills
- By 2020, U.S. employers will need 5 million more workers with postsecondary education than are available in the workforce

In his 2009 address to joint session of Congress, President Obama encouraged all Americans to earn more than a high school diploma. In an effort to improve the economy, President Obama focused on the importance of citizens becoming college and career ready. Whether citizens seek post high school education at a vocational school, community college, or four-year university, President Obama challenged all citizens to seek further college or some form of career training education (Strauss, 2013; White House, 2009). Three years later, in his 2012 State of the Union Address, President Obama furthered his educational agenda by providing a blueprint to strengthen the American economy and the educational system (U.S. Department of Education, 2012). The blueprint calls for a skilled workforce of individuals who can learn, adapt, and be creative. To better prepare a qualified workforce, our educational system must provide students with a rigorous education that provides the knowledge and skills necessary to compete and earn a living wage (U.S. Department of Education, 2012).

Arne Duncan, U.S. Secretary of Education, called upon public officials and policymakers to support the American education system to ensure every student graduates from high school. Graduates must be prepared to pursue postsecondary education and successfully enter the workforce. Secretary Duncan went on to say, “A world-class education system that provides high-quality job-training opportunities will reduce skills shortages, spur business growth, encourage new investment and hiring, spark innovation, and promote continued economic growth” (U.S. Department of Education, 2012, preliminary pages).

The Administration’s blueprint to improve CTE through the reauthorization of Carl D. Perkins Career and Technical Education Act of 2006 includes implementation of rigorous, relevant, and results-oriented programs which support four core principals of alignment, collaboration, accountability, and innovation (U.S. Department of Education, 2012). CTE programs and industry employers must work together to align curriculum to labor market expectations to prepare students to succeed in the workplace. Secondary and postsecondary

institutions must collaborate with industry partners to continually improve CTE offerings at both levels. CTE programs must be held accountable to improve academic outcomes as well as build employability skills into the programs. Lastly, educational systems and state policies must commit to supporting innovation in CTE programs to prepare students to enter postsecondary education or the workforce (U.S. Department of Education, 2012).

The U.S. economy depends on a skilled workforce of educated individuals (ACTE, 2009; Bottoms, 2008; Brand, et al., 2013; Carnevale, Smith, & Strohl, 2010; Holzer et al., 2013; Jacobs, 2008). Students need to have a strong foundation of literacy skills to become contributing employees and valuable citizens (Schneider & Foot, 2013). CTE programs are in a position to provide education and opportunities for students to improve literacy skills. CTE courses tend to motivate students who fail to read and write in other academic contexts. Students respond to learning in an authentic environment, such as an automotive technology, collision repair, or computer lab classrooms. Ultimately, educators at every level need to participate in being part of the solution to improve students' literacy skills (Schneider & Foot, 2013).

The literature is rich with examples of the value, importance, and challenges of students being college and career ready (Boser & Burd, 2009; Brand et al., 2013; Davis & Davis, 2007; Holzer et al., 2013; Riley, 2013; Snow, 2009; Weldon, 2010). Boser and Burd (2009) discuss the dismal rate of high school student preparedness to go on to postsecondary education. They report nearly one third of incoming college freshmen require some sort of remediation at the postsecondary level. While other authors and studies call for a solution to the adolescent literacy crisis for grades K-12, Boser and Burd (2009) call for stakeholders to work together to address the nation's college remediation crisis. The two crises are inextricably linked. Brand et al. (2013) discuss the need for a better educated workforce of employees who possess complex knowledge and skills to navigate jobs in the new economy. To prepare students for the workforce needs of

tomorrow, educational institutions need to provide students with rigorous academic and workplace skills preparation (Brand et al.). Snow (2009) believes there is a need to reform adolescent literacy in order to move students forward to be prepared for college and career success.

The focus of NCLB is to prepare students to pursue postsecondary education. Research studies such as Fletcher's (2009) longitudinal study of the relationship between high school curriculum tracks and degree attainment and occupational earnings of students who participated in general, college preparatory, CTE, and dual tracks provide data regarding numbers of students who go on to college. Participants of Fletcher's study included longitudinal data of participants from a 1996-1997 high school cohort who participated in four different tracks while in high school. Participants included 3,534 (58.3%) from the general track, 1,845 (30.4%) from the college preparatory track, 363 (6%) from the CTE track, and 32 (5.3%) from the dual track. Of the participants, 13% from the general track did not earn a high school diploma. Of the students from the college preparatory track, 36.5% earned bachelor's degrees. Of the dual track, 8.4% of students earned an associate's degree. Findings regarding occupational earnings showed in 2006, students from the general track earned the lowest total income of $20,907.29. Students from the CTE track earned the highest average income of $22,731.67. Additional findings showed females were 1.5 times more likely to enroll in the college preparatory track. Students whose parents had higher household incomes and college educations were also more likely to take part in the college preparatory track. African Americans were 1.7 times more likely than non-Black/non-Hispanic students to participate in the CTE track. Non-Black/non-Hispanics were 1.7 times more likely to participate in CTE track than Hispanics (Fletcher, 2009). The importance of Fletcher's (2009) study provides data showing the advantages of CTE programs to prepare students to be career ready (Baxter, 2011; Bottoms, 2008; Marsella, 2010).

Students who go on to college need to possess a level of academic knowledge including adequate language arts and literacy skills (Gordon et al., 2007; Symonds, Schwartz, & Ferguson, 2011). High school students are required to take rigorous academic courses and participate in high stakes standardized testing. However, 25% of American students either fail to graduate from high school or fail to graduate on time (Bottoms, 2008). CTE programs provide an advantage with regard to teaching academic content in context of industry and careers. Students tend to be more open to learning when they know why they need to learn something (Meeder & Suddreth, 2012). Students drop out of high school for various reasons, one of which is due to a lack of a contextual learning environment where "students discover meaningful relationships between abstract ideas and practical applications in the context of the real world; concepts are internalized through the process of discovering, reinforcing, and relating." (Center for Occupational Research and Development [CORD], 2014, Retrieved from www.cord.org/contextual-learning-definition/). Students are more engaged learners when they see a meaningful contextual connection between what they are learning and how it will relate to them in the future (Anderson, 2008; Bottoms, 2008; Brand et al.; Clark, 2005; Holzer et al.; Ritter, 2014;Wendt, 2013). CTE programs provide students with the contextual meaning as to how and what they learn today will benefit them in college or in the workplace (Bond & Navarra, 2012; Bottoms, 2008; Choi, 2009; Holzer et al.). Strategies suggested to increase graduation rates include aligning CTE programs with college and career readiness standards, providing a system where student interest drives programs of study, working with educational leaders and legislators to prepare students to be college and career ready, developing academic integration processes to benefit students in CTE programs, supporting instructors to return to industry to remain current in their technical skills and implementing an inter-disciplinary approach to literacy wherein curricula is integrated across subjects and grades levels (ACT, 2006; Bottoms, 2008; Crum, 2008; Turnipseed, 2008).

Common Core State Standards Drive Change

To assist teachers in preparing students to be college and career ready, Idaho adopted the Common Core State Standards in order to drive change. Idaho adopted CCSS and teachers are asked to increase focus on literacy learning at K-12 levels (ISDE, 2009). Integration of literacy skills into CTE content areas is a natural fit (ACT, 2006; Bottoms, 2008; Crum, 2008; Green, 2012). Literature reinforces the value of integrating literacy into CTE content (Clark, 2005). CTE curriculum aligns to integrated support of reading, writing, and mathematics.

College and career readiness initiatives at the state and national level have driven the need to take a critical look at the educational system in the United States. In an effort to initiate educational reform and support the college and career readiness movement, the National Governors Association Center for Best Practices (NGA Center) and Council of Chief State School Officers (CCSSO) partnered to develop in the Common Core Sate Standards (CCSS) Initiative. Of particular interest to this research study are the CCSS English language arts standards and the college and career readiness anchor standards for reading (Common Core State Standards Initiative, 2014).

CCSS academic standards in English language arts, literacy, and mathematics are based on standards that are rigorous and require students to read and analyze multiple text passages. Students are encouraged to use critical thinking and problem-solving skills to creatively solve problems. CCSS also encourage connectedness and student engagement with the content. Idaho adopted a form of CCSS and published its own Idaho Core Standards (Idaho Core for Idaho Kids, 2014; ISDE, 2014). The Idaho-specific core standards that were developed:

- Align with postsecondary/college and workforce expectations
- Are clear, understandable, and consistent
- Include rigorous content and application of knowledge through higher-order skills

- Build upon strengths and lessons of current Idaho state standards
- Were informed by standards in other top-performing countries
- Are evidence-based

Idaho teachers use the Idaho Core Standards to prepare students to be successful on the new state standardized test, the Smarter Balanced Assessment Consortium (SBAC) instrument. The SBAC is an intensive test requiring students to use higher order thinking skills to read and analyze complex text passages (Riley, 2013). Idaho high school students in grades 9-11 will spend up to four and one half hours taking the English Language Arts/Literacy portion of the SBAC. Two hours will be spent on non-performance task items, another two hours on performance tasks, and one half hour on an in-class activity (ISDE, 2014).

The Role of Career-Technical Education

The 1990 Carl D. Perkins Amendment emphasized the importance of preparing students to be college and career ready. In the two decades since the 1990 legislation, the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO) developed Common Core State Standards (White & Boling, 2013). CCSS were developed to provide a uniform, clear, understandable, and rigorous set of standards. Although CCSS are not mandated nationwide, most of the states have chosen to adopt the standards (Common Core State Standards Initiative, 2014). CCSS contain anchor standards in English language arts and mathematics, which are required testing areas under NCLB Act of 2001 (Kist, 2013; Meeder & Suddreth, 2012; Riley, 2013; White & Boling, 2013).

The Carl D. Perkins Career and Technical Education Improvement Act of 2006 provides funding for states which align CTE, twenty-first century skills, and academic integration as a means of school improvement and reform (Bottoms, 2008; Carl D. Perkins Career and Technical Education Improvement Act, 2006; Scott, Sarkees-Wircenski, 2001; Stephens, 2011; U. S.

Department of Education, 2006). Five major contributions CTE makes toward school reform include:

- improving academic skills by meeting the demands of a technology-based economy
- producing a highly qualified workforce by connecting secondary and postsecondary programs
- motivating students to graduate and meeting diverse learning needs of students
- including application of academic skills and rigor into CTE
- improving low-performing high schools by providing common planning time among academic and CTE teachers (Holzer et al., 2013; Lakes, 2007; Meeder & Suddreth, 2012; O'Connor, 2012; Riley, 2013; Salinger, 2011; U.S. Department of Education, 2009; Viviano, 2012; White & Boling, 2013; Wilson & Curry, 2011).

The Role of CTE in Adolescent Literacy Proficiency

The National Center for Education Statistics (2011) reported 90% of high school graduates have taken at least one CTE course during their high school career. CTE programs are categorized into eight major programs of study which support the 16 career clusters: agricultural education, business education, marketing education, family and consumer sciences education, trade and industrial education, health occupations education, technology education, and technical education (Brand et al., 2013; Fletcher, 2006). Although NCLB was initially targeted toward academics, CTE administrators and teachers have identified themselves as being able to offer academic content support within the context of their CTE classrooms. Initially CTE teachers were concerned they may become obsolete. Instead, many have come forward requesting to be part of the solution to improve rigorous instruction and support core academic concepts (Fletcher, 2006; Gordon et al.; U. S. Department of Education, 2001).

Improving adolescent literacy levels is one reason that curriculum integration is emphasized in CTE programs by focusing on CCSS in individual CTE courses. Doing so allows students to learn core curriculum in context of their areas of interest. NCLB Act of 2001 and CCSS continue to call for focus on academic content and preparing students to be college and career ready (Adams, 2011; Anderson, 2013; Anderson et al., 2012; Kist, 2013; Meeder & Suddreth, 2012; Riley, 2013; White & Boling, 2013).

Those CTE teachers who have not embraced integration of core academics are urged to reconsider their role in supporting literacy and mathematics instruction within their CTE content area (Gordon et al., 2007; Meeder & Suddreth, 2012). Educational leaders have the opportunity to encourage collaboration among CTE and academic teachers to support integration of academics and CTE to prepare students to be college and career ready (Meeder & Suddreth, 2012). White and Boling (2013) report the following examples of strategies for teaching literacy:

- Know-Want-Learn (KWL) Strategy where students are asked what they know, what they want to learn, and what they have learned.
- Think-Pair-Share where students work collaboratively about a topic. They discuss the topic with a partner and then share what they learned.
- Reading Walk-Through where students identify major elements of the chapter prior to reading the materials. The teacher may introduce vocabulary and difficult concepts as part of this strategy.

In studying how to bridge the divide between students and their level of preparedness to go on to college, Meeder & Suddreth (2012) identified one barrier to be curriculum and instruction issues that are isolated from CTE implementation. CCSS coordinators are overloaded with responsibilities and do not focus on academic areas other than those included in high stakes testing, such as language arts and mathematics. Traditional high schools deliver instruction in

specific content areas and do not tend to integrate or make connections between subject areas (Bond & Navarra, 2012; Meeder & Suddreth, 2012; Sheehan, 2012). CTE teachers have limited experience with academic content areas and lack confidence to integrate language arts into their CTE content area.

The role of CTE in adolescent literacy proficiency lends itself to becoming part of the solution. From the Smith-Hughes Act to current Carl D. Perkins legislation, the focus of CTE has been to prepare students to be successful and productive citizens (Anderson, 2008; Fletcher, 2006; U. S Department of Education, 2011). Students who take CTE courses have the opportunity to learn knowledge and skills in a contextual manner. Now is the time for CTE teachers to reconsider their role in supporting literacy instruction. Integrating literacy into CTE programs provides an opportunity for students to learn in a context (Aguilera, 2011; Anderle, 2008; Taylor, 2001; White & Boling, 2013).

The Role of Career-Technical Student Organizations in Adolescent Literacy Proficiency

The U.S. Department of Education, Office of Vocational and Adult Education recognize 11 Career-technical student organizations (CTSOs):

- Business Professionals of America (BPA)
- DECA – an association for marketing students
- Future Business Leaders of America – Phi Beta Lambda
- Future Educators Association
- Family, Career and Community Leaders of America (FCCLA)
- Health Occupations Students of America (HOSA)
- National FFA
- National Postsecondary Agricultural Student Organization
- National Young Farmer Educational Association

- SkillsUSA
- Technology Student Association (TSA)

CTSOs provide an opportunity for students to read about occupations they are interested in pursuing. CTSOs offer competitive events that require students to read, write, speak, present, and interpret complex text (ACTE, 2009). The National Center for Education Statistics reports 16.2% of all high school graduates, who took at least one CTE course in high school, participated in a CTSO (NCES, 2004).

The career-technical student organizations related to the four CTE program areas in this study are: BPA, TSA, FCCLA, and SkillsUSA. CTSO's are integral to CTE curriculum (ACTE, 2009; IDPTE, 2014; Spindler, 2010; Threeton & Pellock, 2010). Students use the knowledge and skills developed in their CTE classes to compete at local, regional, state, and national CTSO competitions. CTE instructors assist students in preparing for participation in contests by focusing on what students need to know and be able to do to successfully compete and advance to higher levels of competition. Research on CTSO's appears to be limited. One research team interviewed and conducted a focus group of SkillsUSA advisors. Based on the current federal legislation, the researchers wanted to find out what students need to know and do to prepare for the SkillsUSA Occupational Health and Safety national competition and to determine if SkillsUSA contest competencies offer academic rigor and whether or not they naturally align with state 11th grade academic standards. The study found a connection between the SkillsUSA health contest and the academic standards in science and language arts. Although a positive connection between academic rigor and contest preparation was identified, further research should be conducted to examine the rigor of both academic and technical standards within multiple competitive events and different career-technical student organizations (Reese, 2010; Threeton & Pellock, 2010).

In addition to the CTE classroom, students are also able to extend their learning by participating in CTE student organizations, which are integral to CTE programs (Threeton & Pellock, 2010). Student organizations motivate students to apply what they have learned in the classroom setting to real life situations. If the U.S. economy depends on a skilled workforce, students must be prepared with a strong foundation of literacy skills. Participating in a student organization supplements what the student learns in the classroom (Clark, Threeton, & Ewing, 2010; Rayfield, Compton, Doerfert, Fraze, & Akers, 2008). In an effort to prepare citizens to be productive contributors to the U.S. Economy, President Obama is calling for Americans to be college and career ready upon high school graduation (Strauss, 2013; White House, 2009). He also asked citizens to complete some form of postsecondary training beyond high school.

Integration of Literacy into Career-Technical Education Content Areas

Efforts to develop curriculum to support integration of academic content into CTE programs provide students the opportunity to understand why they needed to learn academic content. The curriculum should be taught in a contextual way in order to make it meaningful to students (Anderson, 2008; Bond & Navarra, 2012; Bottoms, 2008; Brand et al., 2013; Clark, 2005; Holzer et al., 2013; Marzano, 2004; Wilson & Curry, 2011; Wilson, Grisham, & Smetana, 2009). Successful integration strategies include collaboration of CTE and academic teachers as well as having CTE teachers serve as guest speakers in core academic content area classes and provide cross-curricular vocabulary including pre- and post-tests for basic skills needed in the workplace (Biancarosa & Snow, 2006; Brand et al.; Clark, 2005; Drage, 2010; Gregson & Sturko, 2007; Kist, 2013; Meeder & Suddreth, 2012; Taylor, 2001).

To better understand what is happening in the field regarding alignment of academic and CTE curriculum, Marsella (2010) surveyed 115 career technical educators. The achievement level of 7,293 CTE students and 4,168 non-CTE students was also studied. The researcher sought to answer three questions: (a) the extent to which curriculum and instructional design

factors are implemented into CTE programs; (b) the extent to which academic achievement levels of CTE students differ from non-CTE students; and (c) whether curriculum and instructional design factors relate to achievement of CTE students. The study found CTE instructors believe their curriculum is aligned with proficiency based graduation requirements and not with workplace business standards. The study also found CTE students did not achieve differently from non-CTE students in the academic subjects of reading, writing, and math (Marsella, 2010).

Instructor belief in the value of integrating literacy and CTE curriculum is a key component of successful academic and CTE integration (Rasmussen, 2014; Tews, 2011). Cross-curricular, project-based activities lead to academic and social success by students (Sheehan, 2012). Partnering with postsecondary institutions is also a vital component to making real world connections for students to go on to college (Boser & Burd, 2009; Sheehan, 2012).

Academic and CTE teachers' perceptions regarding integration of academics and CTE to prepare students to go on to postsecondary education or enter the workforce varies. While integration of academic and CTE curriculum is not a new concept, teachers are finding it difficult to implement this type of integration (Sheehan, 2012; Taylor, 2001). School administrators are encouraged to provide professional staff development to support school employees with encouraging and increasing the presence of academic and CTE integration (Anderle, 2008; Taylor, 2001). The professional development activities will allow teachers and administrators to learn about strategies of integrating academic literacy and CTE content. The training should include hands-on activities that require academic and CTE teachers to develop collaborative activities for their students. After students participate in a collaborative project or activity, they should be given an opportunity to present a reflection report during follow-up sessions. During the follow-up sessions, teachers may share their integration activities with faculty, staff, and

administrators (Anderle, 2008; Anderson, 2012; Bottoms, 2008; Brand et al.; Drage, 2010: Shriner et al.; Taylor, 2001).

The literature shows CTE teachers may believe integrating academics into their content area is beneficial to students (Aguilera, 2011; Anderle, 2008; Anderson, 2013; Anderson, 2012; Anderson, 2008; Baxter, 2011; Bolger, 2008; Drage, 2010; Holzer et al., 2013; Marsella, 2010; Meeder & Suddreth, 2012; Sheehan, 2012; Taylor, 2001). However, CTE teachers report feeling inadequate and ill prepared to deliver instruction and provide remediation in the core academic subjects (Anderson, 2008). CTE teachers need to receive ongoing, sustained professional development if they are to change classroom behavior.

Teacher Educational Philosophical Beliefs Theoretical Framework

The focus of this research is viewed through the theoretical framework lens of Dr. David Silvernail's theory of Educational Beliefs Questionnaire (EBQ) which outlines the three subscales of educational philosophies which are driven by teachers' beliefs. The three subscales include traditionalism, progressivism, and romanticism (Silvernail, 1992). Viewing teachers' educational philosophy orientations of traditionalism, progressivism, and romanticism, specific professional development workshops can be personalized to provide teachers with the appropriate knowledge and skills to better assist them in integrating literacy into content classrooms.

Specifically, this research study focuses on the attitudes and beliefs of CTE teachers regarding integrating CCSS academic literacy instruction into CTE content area classrooms. The basic premise of integrating CCSS literacy for technical subjects is to teach, or support teaching, reading in the CTE content area Research shows a link between teachers' attitudes and beliefs as they relate to their classroom practice (Hativa & Goodyear, 2002). Dr. David Silvernail's review of the literature in the early 1990's revealed a shortage of research focusing on educational beliefs of high school teachers (Silvernail, 1992). Dr. Silvernail believed teacher educational

beliefs were instrumental in driving educational reform. In an effort to add to the limited literature, Dr. Silvernail created the 21-item Likert-style *Educational Beliefs Questionnaire* (EBQ) which was designed to measure three broad educational philosophies of traditionalism, progressivism and romanticism as described by Kohlberg and Mayer (1972). Table 1 provides a summary overview of the EBQ educational philosophy orientations as they relate to the five criteria as outlined by Silvernail (1992).

Table 1

Summary EBQ Educational Philosophy Overview

	Educational Philosophy Belief Subscale		
	Traditionalism	Progressivism	Romanticism
Purpose of schools	Transmitting essential knowledge	Foster the intellectual process	Sources of new social ideas
Nature of curriculum content	Predetermined facts and skills	Discovery of facts through inquiry	
Methods of instruction	Drill and practice	Inquiry	
Roles of the teacher	Strong authority	Facilitators	Guides natural development of each child
Roles of the student	Passive involvement	Active involvement	Develop self-awareness

Traditionalism

Eight items in the EBQ support the traditionalism subscale. These questions assess beliefs relating to the importance of schools in transmitting knowledge, the school culture, value of repetitive practice, and authoritative role of teachers versus passive roles of students.

Progressivism

The progressivism subscale measures beliefs about the role of schools in nurturing the intellectual process including the inquiry method of learning and the role of the instructor as a facilitator rather than a transmitter of knowledge. Student involvement in their learning is a factor in the progressivism subscale.

Romanticism

Seven items in the EBQ support the romanticism subscale. The beliefs of the romanticist include the role of the school as valuing individual self-awareness and developing sources of new social ideas. The romanticist also believes in the importance of child-centered schools wherein the teacher serves as a guide in the natural growth of each student (Silvernail, 1992).

The lack of literature focusing on CTE teachers versus academic teachers served as a catalyst for using the EBQ in this dissertation research. The EBQ provides a method to discover the beliefs and subscale placements of CTE teachers.

Academic Teachers' Beliefs

Teachers' beliefs influence their perceptions and behavior in the classroom (Adams, 2011; Fairbanks et al., 2010; Hathaway, 2009; Shriner et al., 2010; Shinde & Karekatti, 2012; Silvernail, 1992; Ulusoy & Dedeoglu, 2011; Wright, 1980; Yilmaz & Sahin, 2011). Student achievement and classroom learning environments are influenced by teachers' beliefs, attitudes, and practice. Teachers' beliefs about teaching range from direct transmission, based on the teacher conveying information and knowledge to students, to constructivist beliefs wherein the role of the teacher is to facilitate student inquiry and problem solving (Organisation for Economic Cooperation [OECD], 2009).

Hathaway (2009) conducted research to discover what beliefs were held by reading specialists and teachers with regard to literacy instruction and education. Specifically, Hathaway (2009) examined teachers' beliefs as they related to literacy coaching as found in professional

development activities. The study was conducted using the Educational Beliefs Questionnaire (EBQ), which was developed by Silvernail, and the Literacy Orientation Survey (LOS), which was developed by Lenski, Wham, and Griffey (1997). Of the four teachers selected for in-depth interviews, one ranked in traditionalism and three ranked in progressivism orientation. The Literacy Orientation Survey was also used to assess teacher beliefs about literacy learning and how it relates to classroom practices. The LOS scores are associated with traditional, eclectic, or constructivist orientation to literacy learning and instruction. The outcome of the study identified beliefs which influenced teachers' participation in literacy coaching. In similar research, it was discovered the beliefs held by teachers contradicted their desired outcomes (Hathaway, 2009; Silvernail, 1992). In order to provide appropriate professional development to teachers, it is important to know how their beliefs are held and whether or not they are open to change.

Adams (2011) surveyed 380 Alabama high school teachers in the academic content areas of English language arts, science, and social studies. Adams (2011) deployed Silvernail's (1992) Educational Beliefs Questionnaire (EBQ) and Vaughan's (1977) Scale to Measure Attitudes toward Teaching Reading in Content Classrooms. In addition to teacher academic content area, the study also took into consideration four levels of teacher certification of Emergency or Alternative, B-Level, A-Level and AA-Level certificates. The results showed no significant differences between content areas for traditionalist or progressivist educational philosophies. However, a significant difference was found between academic content areas, showing social studies teachers scored significantly higher in the romanticist category than English language areas or science teachers (Adams, 2011). The study also found a significant difference in EBQ traditionalist philosophy scores among teachers with emergency or alternative certification over the other three types of teacher certification. No significant differences were found between content areas for either progressivist or romanticist educational philosophies.

Adams' (2011) study played an important role in the creation of this research. CTE teachers often espouse they do not need to participate in common core or academic integration. Adams' (2011) research provides a baseline of academic teachers' educational philosophy beliefs as well as attitudes toward teaching reading in their academic classrooms. Based on minimum numbers of studies focused solely on CTE teachers, this researcher is able to reproduce the study using CTE teachers as the target sample.

Career–Technical Education High School Teachers' Beliefs

Recent research supported those characteristics of CTE which are defined by the Association for Career and Technical Education (ACTE, 2009), including two characteristics which support college and career readiness where academic subjects are integrated into CTE (Green, 2012). CTE teachers are passionate about their content area. However, CTE teachers do not understand why others do not find the same value or why they have negative perceptions of CTE. The researcher was surprised at the response from pre-service teachers when they said "CTE student teachers are students first and teachers second" (Green, 2012, p. 176).

In other research, findings supported teacher attitudes regarding using technology to integrate curriculum across subjects. Other CTE teachers reported they did not have a thorough understating of how to integrate multiple content areas in their CTE classes. Teachers reported their dependence upon teacher manuals, which are purchased from a number of online publishing or distribution outlets. Teachers choose to integrate standards across the curriculum when they see the value and benefit for their students (Shriner et al., 2010).

Teacher beliefs and attitudes play a role in whether or not they choose to integrate academic literacy learning into their CTE content classrooms. The literature review highlighted studies that support the integration of academics and CTE as well as providing professional development to assist teachers in the integration efforts (Adams, 2011; Drage, 2010; Fang, 1996; Hathaway, 2009; McAtee, 1977; Pajares, 1992). Teachers feel unprepared to deliver instruction

in academic areas and desire professional development training to do so (Brand et al.; Cantrell & Hughes, 2008; Drage, 2010; Fairbanks et al., 2010; Greenleaf & Hinchman, 2009; Gregson & Sturko, 2007; Hathaway, 2009; Holzer et al.; Jacobs, 2008; Snow, 2009; U.S. Department of Education, 2009; Wilson & Curry, 2011).

Career-Technical Education High School Students' Beliefs

Although the main focus of this study is related to attitudes and beliefs of high school CTE teachers, considering CTE students' beliefs may provide an interesting dimension to the study. Middleton (2012) conducted doctoral research regarding the perceptions of high school graduates of CTE courses. The purpose of the study was to provide data to stakeholders, school administrators, and teachers to assist them in making data-driven decisions with regard to CTE course curriculum improvement and remediation. Middleton (2012) used a conceptual framework which included concepts of multiple intelligences, differentiated instruction, and social cognitive theory of self-efficacy. In the findings, a variety of teaching methods including individual instruction, drill and practice, instructional support using peers, or cooperative grouping as a way of providing support to students. Findings of the study may provide information for administrators and teachers of CTE programs to assist their students in meeting their career goals. The outcome of the qualitative case study showed the participants, high school graduates of CTE programs, articulated positive perceptions of the impact of CTE courses on their career goals and also had positive perceptions of their learning experiences, especially when CTE instructors used a variety of instructional methods to assist students in understanding the technical content of the course (Middleton, 2012). CTE courses provide the opportunity for students to develop new or enhanced academic and technical skills such as improved mathematics, language arts, and interpersonal skills which could be used in the workplace (Bottoms, 2008; Middleton, 2012; Threeton & Pellock, 2010).

CTE students have also reported the value of CTE student organizations as a means of strengthening their academic and technical skills (Threeton & Pellock, 2010). The federal Carl D. Perkins CTE Act of 2006 also names career technical student organizations as an integral means of integrating technical and academic standards.

Professional Development and Teachers' Beliefs

In order to increase teacher retention and decrease teacher turnover as a means to maintain qualified teachers in the workforce, it is important to know the professional development needs of CTE teachers. What motivates CTE teachers to participate in professional development? What barriers exist for CTE teachers in professional development? CTE teachers desire professional development opportunities to improve their understanding of research, the need for knowledge and skills to work with disabled students, and to collaborate and share instructional resources with colleagues. While CTE instructors are motivated to pursue professional development opportunities to become better teachers, they identified lack of time and funding as barriers to professional development (Cantrell & Hughes, 2008; Drage, 2010; Gregson & Sturko, 2007).

Professional development research specific to Idaho includes a study by Gregson and Sturko (2007) wherein they worked in cooperation with two institutions of higher education and a state agency to conduct research as part of a professional development opportunity for CTE and academic teachers. In 2006, an undisclosed number of CTE and academic teachers enrolled in the academic integration course which focused on integrating literacy (reading and writing) and math skills into their current CTE curriculum. The state agency involved offered a $250 stipend for teachers who completed the course. The researchers focused on the relationship between the professional development experience and the principles of adult learning. The course was designed to encourage active participation, collaboration, and teamwork. At the

conclusion of the course, teachers took a survey and submitted an essay reflecting on their experience.

Gregson and Sturko (2007) were also interested in learning whether or not the professional development followed the Knowles, Holton, and Swanson (2005) six principles of adult learning in which adults:

- demonstrate internal and self-directed motivation
- value life experience and prior knowledge as it pertains to new learning
- set goals
- value relevance of what is being learned
- are practical and appreciate hands-on experiences
- want to be respected

Academic instructors were paired with CTE teachers to collaborate and demonstrate teamwork. These teams delved into the specifics of developing lesson plans to integrate academic and CTE content. The results of the study demonstrated the importance of including the six principles of adult learning into professional development opportunities for academic and CTE teachers. The course provided teachers the opportunity to actively participate, demonstrate teamwork, develop meaningful lesson plans, and grow as professionals. Based on the design and delivery of the integration course, both academic and CTE teachers were able to reflect on their teaching, build professional knowledge with peers, and build professional relationships with teachers outside of their own content areas (Gregson & Sturko, 2007).

CTE Teacher Certification

Research studies have also been conducted to determine whether or not the teacher preparation programs for alternative licensure successfully provided the professional development needed by academic teachers who sought to become licensed CTE teachers.

O’Connor (2012) reports CTE as a profession is transitioning away from solely preparing students to be successful in the world of work, toward preparing students to be academically prepared to enter postsecondary education or employment. CTE programs continue to become more academically rigorous and seek to prepare students beyond entry-level employment in a specific occupational area. CTE programs have given way from entry-level employment preparation to programs ranging from biotechnology to pre-engineering. These content areas support academic subjects such as mathematics, science, and technology.

A review of the literature indicates much has been published regarding alternative licensure from industry to CTE teaching (Anderson, 2013; Edney, 2010; Maurer, 2001; O’Connor, 2012; Zirkle, Martin, & McCaslin, 2007;). However, the literature is weak when it comes to research that has been done with academic teachers who seek alternative licensure to become CTE teachers (O’Connor, 2012). Teacher preparation provides professional development opportunities for pre-service teachers as well as veteran teachers, specifically during summer sessions. Benefits of the teacher preparation programs identified by teachers included curriculum development, safety and lab management, program marketing, on-site mentoring, and assistance with licensing paperwork (Anderson, 2008; Fairbanks et al., 2010; O’Connor, 2012). The results of the study indicate academic teachers require information and support to become CTE teachers. Academic teachers in the study indicated the CTE licensure program was unnecessary, however, they did learn from it. The CTE licensure program ultimately provided a successful transition for academic teachers into the profession of CTE teaching (O’Connor, 2012).

Career technical education teachers earn teacher certification either by completing a traditional four-year teacher preparation program, or earning licensure based on industry work experience (Lazaros, Cotton, & Brown, 2012; Santamaria, Taylor, Park, Keene, & van der Mandele, 2010). Teacher certification and licensure may influence their attitudes and beliefs

regarding their ability to integrate academic literacy instruction in their CTE content classrooms. Professional development may also influence teacher attitudes and beliefs (Gregson & Sturko, 2007). The need to increase teacher retention and decrease teacher turnover supports the need for professional development opportunities. CTE instructors are motivated to pursue professional development opportunities to become better teachers (Cantrell & Hughes, 2008; Drage, 2010; Edney, 2010; Gregson & Sturko, 2007).

Conclusion

The literature review provided an overview of the adolescent literacy rate in the United States. Studies related to the adolescent literacy crisis, No Child Left Behind federal legislation, and Common Core State Standards were reviewed. Based on literacy rates and required standardized tests, a gap in achievement has been identified (ACTE, 2009; Hyslop, 2010; Meeder & Suddreth, 2012). NAEP scores indicate we are still leaving some children behind. By 8th grade, students are not performing as well on literacy tests as they were in 4th grade (U. S. Department of Education, 2013). Educators and administrators are faced with the challenge of finding solutions to the adolescent literacy crisis. President Obama, Secretary of Education Arne Duncan, and authors of educational research call for preparing youth for college and career, which includes increasing literacy skills (Strauss, 2013; U.S. Dept. of Education, U.S. Department of Education, January 12, 2015; White House, 2009).

The literature review supported the use of Silvernail's (1992) educational philosophy subscales of traditionalist, progressivist, and romanticist provide a theoretical framework wherein teachers' educational philosophy orientation is identified. It also supported Vaughan's (1977) Scale to Measure Attitudes Toward Teaching Reading in the Content area as a viable means of measuring teachers' attitudes and beliefs toward teaching reading in content classrooms.

Chapter III

Design and Methodology

Introduction

The purpose of this quantitative study was to examine the differences in CTE teachers' educational beliefs and attitudes toward teaching reading in business education, engineering technology education, family and consumer sciences, and skilled and technical sciences classrooms in Idaho high schools when both CTE content area and teacher certification levels were considered. The importance of this study stems from the adolescent literacy gap created by the large number of students who lack the skills necessary to meet the demands of reading in high school, preparing to read in college, and continuing on to workplace literacy needs. CTE teachers are being asked by administrators to address the adolescent literacy gap by providing the rigorous and relevant instruction needed to address this gap and prepare students for college and careers (Holzer et al., 2013; Marsella, 2010; Meeder & Suddreth, 2012).

Research Design

Gay, Mills, and Airasian (2009) report, "Quantitative research is the collection and analysis of numerical data to describe, explain, predict, or control phenomena of interest" (p. 7). A quantitative study of Idaho CTE business technology, engineering technology education, family and consumer sciences, and skilled and technical sciences teachers was conducted using a survey instrument which combined Silvernail's Educational Beliefs Questionnaire (EBQ) (see Table 2) and Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms (see Table 3). The two central research questions investigated in this study were:

1. Is there a difference in the three subset scores of the Educational Beliefs Questionnaire (EBQ) between teachers in each of four high school CTE content areas and between Idaho teacher certification levels?

2. Is there a difference in teacher attitudes about integrating CCSS literacy for technical subjects in Idaho high schools as measured by Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms, between teachers in each of four high school CTE content areas and between Idaho teacher certification levels?

A quantitative research design was planned to answer the research questions described in this study. The researcher first utilized descriptive statistics to summarize the characteristics of the data set, followed by inferential statistics to draw conclusions about the data (Tanner, 2012). Creswell (2008) suggests quantitative analysis is most appropriate as it allows the researcher to evaluate data into parts to address the research questions.

A descriptive statistics survey research design was selected for this research study. Survey research uses numerical data to answer research questions about the current status of participants of the study (Gay et al., 2009). The purpose of the survey instrument is to collect data to determine if relationships exist between two or more variables and use those relationships to make predictions (Gay et al.).

Roles of the Researcher

In a quantitative research study, the role of the researcher is to design appropriate research, gain access to participants, administer survey instrument, and conduct research in a trustworthy manner (Gay et al., 2009). The researcher also analyzes and interprets data and reports the findings in a logical manner with attention to integrity, utility, rigor, and vitality (Marshall & Rossman, 2011).

The researcher brings a love of learning, three college degrees, and more than 20 years of experience as a professional educator and is currently in her fifth year serving as the career and technical education coordinator for the largest school district in Idaho. For the decade prior to her current position, she served as the state program manager of business and marketing education at

Idaho Division of Professional-Technical Education. Her career has focused on CTE as a teacher at both the high school and college levels and as a CTE administrator at state and district levels.

The study was conducted in the researcher's home state of Idaho. The survey was deployed during a statewide professional development event. Although teachers from the district where the researcher is currently employed participated in the survey, all responses were strictly confidential.

The researcher's educational philosophy is to provide meaningful learning opportunities to students so that they may acquire the knowledge, skills, and attitudes necessary to become successful citizens in a global economy. As passionate practitioner of CTE, and advocate for integration of literacy into CTE, the researcher may bring a potential bias to this study.

Instrument

During early stages of the literature review, the researcher read a dissertation by Dr. Cindy Adams, a doctoral student at The University of Alabama at Birmingham in 2011. The survey instrument used in Adams' study combined two previously validated surveys created by Silvernail (1992) and Vaughan (1977). Adams studied academic teachers' attitudes and beliefs toward teaching reading in their academic content area. After further review of the literature, the researcher chose to emulate Adams' study by using the same survey instruments to study differences in CTE teachers' educational beliefs and attitudes toward teaching reading in their business education, engineering technology education, family and consumer sciences, and skilled and technical sciences classrooms in Idaho high schools.

The paper-pencil survey combined Silvernail's EBQ and Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classroom. The 43-item Idaho High School Literacy Survey is composed of seven demographic questions and closed-ended questions that can easily be quantified (See Appendix B). The researcher contacted Dr. Silvernail by email (see Appendix H) and obtained permission to use his 21-item belief statement EBQ (see Appendix E

and F). The EBQ uses a 5-point Likert scale ranging from 1 “Strongly Disagree” to 5 “Strongly Agree.” Fully validated, the purpose of the EBQ is to examine teaches’ educational beliefs and assess their educational orientations (Silvernail, 1992). The EBQ belief statements assess teachers’ educational orientations based on their responses to five concepts including the purpose of schools, nature of curriculum content, instructional methods, teacher roles, and student roles (Silvernail, 1992). The EBQ measured teacher beliefs and categorized them into three orientation subscales: traditionalist, progressivist, and romanticist.

The traditionalist subscale is based on eight of the 21 items. This particular subscale assesses teachers’ beliefs about the importance of schools in transferring necessary information and the principal culture, the importance of drill and repetition in learning, strong authority roles for teachers, and passive roles for students (Silvernail, 1992).

The progressivist subscale is based on six items which assess teachers’ beliefs about the essential role of schools in nurturing the intellectual process, the significance of the inquiry method in education, the role of the teacher as a facilitator and the active participation of students in their own learning (Silvernail, 1992).

The romanticist subscale is represented by the seven final items which assess teachers’ beliefs about the role of schools as sources of new ideas and student self-awareness, the importance of schools being student-centered, and the role of teachers as leaders in the learning experience of each child (Silvernail, 1992).

Teachers were asked to indicate their level of agreement with each of the 21 survey items on the EBQ. The Likert-type scale ranged from 1 “Strongly Disagree” to 5 “Strongly Agree”, and the subscales of traditionalist, progressivist, and romanticist attitudes were calculated based on an average of the item responses for each subscale. Table 2 illustrates the three subscales of philosophical education orientation as well as the questions used to measure each subscale.

Table 2

The Three Philosophical Factors and Item Structure of the EB

Philosophical Factors and Classroom Orientation	Item No.	Belief Description
Traditionalism	1	Curriculum should contain an orderly arrangement of subjects that represent cultural heritage.
	2	Demonstration and recitation are essential components of learning.
	3	There are essential skills all students must learn.
	4	Student need and should have more supervision and discipline than they usually get.
	5	Drill and factual knowledge are important components of any learning.
	6	There are essential pieces of knowledge that all students should know.
	7	The student should be a receiver of knowledge.
	8	The teacher should be a strong authority figure in the classroom.
Progressivism	9	Students learning from other students is an important component of any learning environment.
	10	Schools exist to foster the intellectual process.
	11	Teaching should center around the inquiry method.
	12	Teachers should be facilitators of learning.
	13	Ideal teachers are constant questioners.
	14	Teachers must teach the student at his/her level and not at the grade level the student is in.
Romanticism	15	Schools should be sources of new social ideas.
	16	Schools exist to facilitate self-awareness.
	17	No subject is more important than the personalities of the students.
	18	Students should be allowed more freedom than they typically do during learning activities.
	19	Schools exist to preserve and strengthen spiritual and social values.
	20	Students should play an active part in program design and evaluation.
	21	The curriculum should focus on social problems and issues.

Reprinted with permission from Adams (2011) (see Appendix G and H)

Silvernail's (1992) three educational philosophy subscales; traditionalist, progressivist, and romanticist also undergird the theoretical framework of this research study. By framing the research around the theory of teachers' educational beliefs, their philosophical educational belief subscale allowed the researcher to categorize these beliefs as they relate to teachers' attitudes and

beliefs toward teaching reading in their CTE content area. The theoretical framework also allowed the researcher to cluster teacher beliefs by level of teacher certification.

David Silvernail, the original creator of the EBQ, described the methods he used to differentiate the three subscales. By using factor analysis of the EBQ with principal component and varimax rotation procedures, three distinct subscales were revealed from the questionnaire. The findings included internal consistency coefficients ranging from .73 to .76 for the three subscales (Silvernail, 1992). Silvernail's work expanded on that of Kohlberg and Mayer's (1972) work which originally described the three subscales of traditionalism, progressivism and romanticism.

The second component of the survey included the Scale to Measure Attitudes toward Teaching Reading in the Content Classrooms, developed by Vaughan (1977), which assessed teacher attitudes toward teaching literacy in secondary classrooms. Although deceased, Vaughan (1977) granted permission for researchers to reproduce and use the Scale to Measure Attitudes toward teaching Reading in the Content Classrooms in a published peer-reviewed journal article (Vaughan, 1977). Information collected on the survey examined the differences in CTE teachers' educational beliefs and attitudes toward teaching reading in their business education, engineering technology education, family and consumer sciences, and skilled and technical sciences classrooms in Idaho high school classes.

Vaughan's (1977) Scale to Measure Attitudes toward Teaching Reading in Content Classrooms contains 15 items, shown in Table 3, which are measured on a 7-point Likert-type scale from 7 "Strongly Agree" to 1 "Strongly Disagree". Nine of the items are positive and six of the 15 are negative. The negative items should be scored in reverse order. Ten of the items measure teachers' attitudes about who should be responsible for reading instruction. The remaining five items measure teacher attitudes about teaching reading strategies. The researcher deployed the survey with the Likert scale listed in reverse order 1 "Strongly Agree" to 7 "Strongly

Disagree". The researcher discovered the error after collecting data from 291 participants. However, the original author called for six of the items to be scored in reverse order, which would have transposed them into the scale that was actually used on the survey instrument. The researcher reversed the nine items that were originally meant to stay at 1 "Strongly Disagree" to 7 "Strongly Agree". The researcher met with a statistician to discuss the error and solution. The statistician agreed that the solution was justified and the results would not be skewed due to the original typographical error of reversing the Likert-scale.

Table 3

Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms

Item	Description
1	A content area teacher is obliged to help students improve their reading ability.
2	Technical vocabulary should be introduced to students in content classes before they meet those terms in a reading passage.
3	The primary responsibility of a content teacher should be to impart subject matter knowledge.
4	Few students can learn all they need to know about how to read in their first six years of schooling.
5	The sole responsibility for teaching students how to study should lie with reading teachers.
6	Knowing how to teach reading in content areas should be required for secondary teaching certification.
7	Only English teachers should be responsible for teaching reading in secondary schools.
8	A teacher who wants to improve students' interest in reading should show the student that he or she likes to read.
9	Content teachers should teach content and leave reading instruction to reading teachers.
10	A content area teacher should be responsible for helping students think on an interpretive level as well as a literal level when they read.
11	Content area teachers should feel a greater responsibility to the content they teach than to any reading instruction they make be able to provide.
12	Content area teachers should help students set purposes for reading.
13	Every content area teacher should teach students how to read material in his or her content specialty.
14	Reading instruction in secondary schools is a waste of time.
15	Content area teachers should be familiar with theoretical concepts of the reading process.

Reprinted with permission from Dr. Cindy Adams (2011) (See Appendix H)

Bland and Altman (1997) report the use of Cronbach's Alpha to determine internal consistency of a survey instrument (Cronbach, 1951). The purpose of testing internal consistency is to ensure the survey items measure the same thing and as well as correlate survey items with one another. When using survey responses to compare groups, Bland and Altman (1997) recommend $\alpha = 0.7$ to 0.8 as satisfactory. For studies in the medical or clinical setting, $\alpha = 0.9$ and $\alpha = 0.95$ is most desirable. For surveys with $\alpha = 0.61$ to 0.88, Bland and Altman (1977) report the survey has satisfactory internal validity.

Using Cronbach's Alpha, Vaughan (1977) measured the internal consistency and stability of the original scale. Vaughan (1977) found an internal consistency for the overall scale of .87, which he reported as being high for an attitude scale. Vaughan calculated a .77 stability coefficient using Pearson Product Moment Correlation with a range of .66 to .89. There are 105 points possible on the Scale to Measure Attitudes toward Teaching Reading in Content Classrooms, which provide for five levels of teachers' positive attitudes toward teaching reading in the secondary content classroom. The scores breakdown as follows: high (91 or higher), above average (81-90), average (71-80), below average (61-70), and low (60 or lower). The researcher must take into consideration the reversed scores of six of the 15 items. Nine items are positive and six are negative. The negative items were scored in reverse as compared to the positive items. Each teacher's total score represented his or her receptiveness to reading instruction at the secondary level in their content area (Vaughan, 1977).

The survey was deployed in two settings. First, a paper-pencil survey was used on site at the teacher conference. Second, the survey was entered into Qualtrics electronic format and made available to CTE teachers who were not able to attend the conference. The results of the paper-pencil survey were entered by the researcher into Qualtrics. The researcher worked in concert with a data specialist who assisted in ensuring the accuracy of the data entry. The data specialist signed a confidentiality agreement prior to accessing hard copies of the survey (See Appendix I).

Participants

The participants targeted in this research were Idaho CTE teachers. The Idaho Division of Professional-Technical Education (IDPTE) recognizes and supports 644 CTE programs statewide in seven distinct program areas. Of those seven areas, four were purposefully selected to serve as the sample population for this research study. Teacher certification was one of the variables considered in this research design. The researcher considered the levels of teacher certification necessary to teach in each of the seven program areas. Teachers from two of the program areas, family and consumer sciences and business technology, primarily graduate from a four-year teacher preparation program. Teachers in the engineering technology education program area are trained through a teacher preparation program, but may also qualify through industry experience via an occupational teaching certificate. Skilled and technical sciences teachers enter the teaching professional directly from industry with a limited occupational specialist teaching certificate. IDPTE recognizes and supports 410 CTE programs statewide in the program areas of business education, engineering technology education, family and consumer sciences, and skills and technical sciences. A total of 465 CTE teachers teach in approved programs in the four targeted program areas.

IDPTE hosts an annual professional development conference for Idaho CTE teachers and administrators. During the June 15-18, 2014, IDPTE Annual Summer Conference, 234 teachers from business education, engineering technology education, family and consumer sciences, and skilled and technical sciences voluntarily participated in the research study. In September, 2014, those teachers who did not attend the conference were invited to complete the survey online using Qualtrics electronic survey software. Table 4 shows the overall summary of responses. The purpose of showing the data by gender and content area is to provide information on over- or under-represented members of the sample. For example, Family and Consumer Sciences teachers are represented by 81 females and one male.

Table 4

Demographics of Overall Sample (n = 291) by CTE Content Area and Gender

	Male	Female
CTE Content Area		
Business Education	33	75
Engineering Technology Education	33	8
Family and Consumer Sciences	1	81
Skilled and Technical Sciences	41	11
Undeclared	1	-
Total	112	179

Note. Pearson Chi-Square value 117.598; 4 df; p<.000

Table 5 reports the number of participants who teach at high schools at grade levels 9-12 and 10-12. The 21 teachers who reported 'other' provided information regarding size of schools such as 7-9, 7-12, and 6-12.

Table 5

Demographics of Overall Sample (n = 291) by School Type

School Size	Frequency	Percent
Grades 9-12	227	78.0
Grades 10-12	39	13.4
Other	21	7.2
Missing	4	1.4
Total	291	100

Table 6 represents student enrollment at the schools where participants teach CTE courses.

Table 6

Demographics by High School Enrollment

Student Enrollment	Frequency	Percent
1,280+	80	27.5
1,279-640	67	23.0
639-320	39	13.4
319-160	36	12.4
159-100	37	12.7
99 & below	31	10.7
Missing	1	.3
Total	291	100

Data Collection

In this quantitative study, data collection occurred on June 15-18, 2014, on site at the IDPTE Annual Summer Conference in Boise, Idaho. Teachers from four of the seven approved CTE program areas were selected to complete the survey. All participating CTE high school teachers in business education, engineering technology education, family and consumer sciences, and skilled and technical sciences who were in attendance at CTE content division meetings were invited to voluntarily complete the survey.

Prior to the conference, the researcher sought permission from four program managers at IDPTE (See Appendix J). All four program managers agreed to allow the researcher to gain access to the CTE teachers during the annual conference. The program managers agreed to allow the researcher to personally meet with the teachers during their content specific program area meetings (see Appendix K). Due to time constraints, the researcher asked for assistance from three higher education professors who assisted in the administration of the survey. One professor

from Idaho State University and two from University of Idaho agreed to attend the sessions to hand out and collect surveys during the division meetings of the sample population groups. Respondents returned the completed surveys to the researcher's assistants, all of whom had signed a confidentiality statement (See Appendix I). Of the 495 teachers invited to participate, 234 completed the survey.

Data was collected by survey, which allowed the researcher the ability to quantify and provide numeric description of attitudes and beliefs of the population sample and allowed for inferences to be made from the sample to a population (Creswell, 2008). Data collected via a survey utilizing a Likert-type scale was completed by business education, engineering technology education, family and consumer sciences, and skilled and technical sciences high school teachers during the IDPTE Summer Conference. Data was collected in two phases. First, 234 CTE teachers completed a paper-pencil survey on site at the PTE Summer Conference. Verbatim instructions were read to participants prior to commencing the survey (see Appendix L). Second, following the start of the 2014-2015 school year, IDPTE program managers sent email invitations to content area CTE teachers to complete the survey online. The electronic survey was available during the first two weeks of September. Seventy-three CTE teachers participated in the online survey. Of those, 16 were not useable due to incomplete answers on at least 50% of the survey items. The total number of useable participant responses was 291 which represented a 62.6% response rate (see Table 7). A debrief statement was emailed to CTE teachers thanking those who participated either in person at the conference in June or online via the Qualitrics survey in September (see Appendix M).

Table 7

Summary of Response Rate

Total Population CTE Teachers in four content areas studied	(N) = 465
Number of teachers who took the survey via paper/pencil on site at summer conference, June 15-17, 2014	234
Number of teachers who took the survey via Qualtrics electronic format online September 1-15, 2014	73
Total number of surveys received	n = 307
Number of surveys incomplete/discarded	(16)
Number of valid surveys included in analysis	n = 291
Resulting in overall response rate	62.6%

During the course of this research project, the IDPTE business education program manager resigned and another was hired. The new program manager sent out the Qualtrics electronic survey invitation to the business and marketing teachers. The IDPTE engineering technology education program manager went out on long-term maternity leave. In her absence, the program manager for family and consumer sciences was able to send out the invitation to the engineering teachers. The IDPTE skilled and technical sciences program manager resigned; however, she sent the Qualtrics electronic survey invitation to teachers in her program area prior to leaving the division.

Table 8 provides demographic information regarding number of teachers who attended summer conference and those who did not. Based on the responses, the electronic survey resulted in the completion of 21 additional surveys from participants who attended conference but did not complete the survey while at conference.

Table 8

Participants Who Attended Summer Conference

	Attended	Percent
Yes	255	87.6
No	36	12.4
Total	291	100

Table 9 indicates the number of participants who self-reported they completed the survey at summer conference. Of special note, although teachers who completed the survey online had the opportunity to indicate whether or not they completed the survey on site at conference, the research counted 234 surveys which were actually completed on site. Therefore, the number of participants who completed the survey at conference reported through this research study is 234.

Table 9

Completed Survey at Conference

	Frequency	Percent
Yes	235	80.8
No	55	18.9
Missing	1	.3
Total	291	100

Analytical Methods

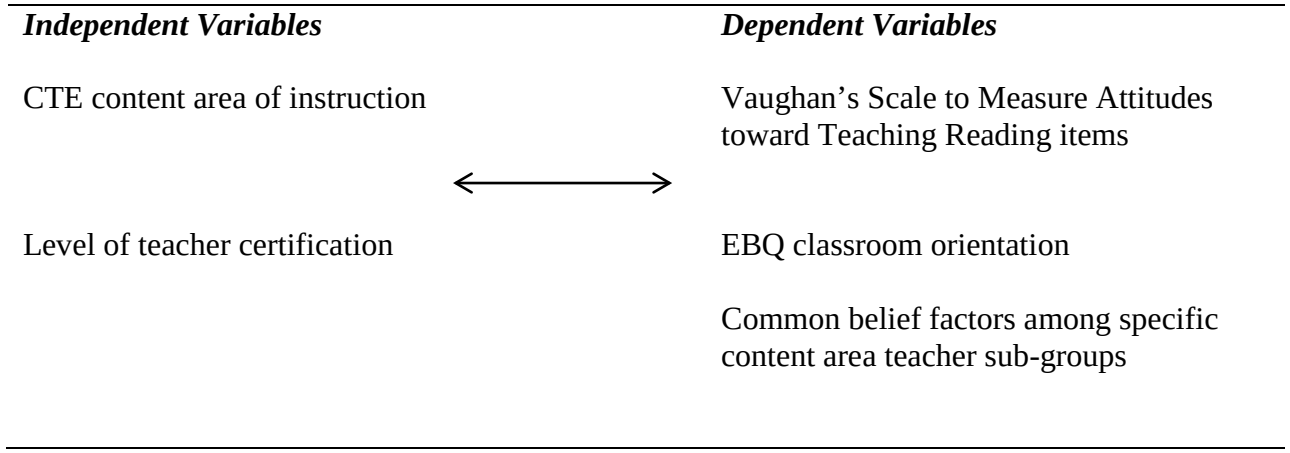
The study analyzed teachers' attitudes and beliefs toward teaching reading in career technical education content classrooms as measured by the Idaho High School Literacy Survey (See Appendix B). Quantitative correlation methods were used, including descriptive

analysis using Chi-Square, Analysis of Variance (ANOVA), Factorial ANOVA, and Pearson-Correlations. The subjects of the study were 291 career technical educators from Idaho public secondary schools.

Descriptive and inferential level statistical analyses were utilized. IBM SPSS statistical software was used to analyze the independent and dependent variables (See Figure 1).

Figure 1

Conceptual Model of Variables



Note. Reprinted with permission from (Adams, 2011) (See Appendix H).

Descriptive statistics were used to describe the level of positivity toward teaching reading in the content area. A factorial analysis of variance was used to answer the two research questions:

1. Is there a difference in the three subset scores of the Educational Beliefs Questionnaire (EBQ) between teachers in each of four high school CTE content areas and between Idaho teacher certification levels?

Specifically, is there a difference in the three subset scores of the EBQ: traditionalist, progressivist, and romanticist, between teachers in each of four high school CTE content areas: (a) business education, (b) engineering technology education, (c) family and consumer sciences, and (d) skilled and technical sciences and between Idaho teacher certification levels

including: (a) provisional, (b) limited occupational specialist, (c) standard occupational specialist, or (d) standard secondary teaching certificate?

2. Is there a difference in teacher attitudes about integrating CCSS literacy for technical subjects in Idaho high schools as measured by Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms, between teachers in each of four high school CTE content areas and between Idaho teacher certification levels?

Specifically, is there a difference in teacher attitudes about integrating CCSS literacy for technical subjects in Idaho high schools as measured by Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms, between teachers in each of the CTE content areas: (a) business education, (b) engineering technology education, (c) family and consumer sciences, and (d) skilled and technical sciences and between Idaho teacher certification levels including: (a) provisional, (b) limited occupational specialist, (c) standard occupational specialist, or (d) standard secondary teaching certificate?

A primary component factor analysis was conducted to determine clustered factor loadings for each of the four groups of teachers. The purpose of the factor analysis for each group is to reduce a large set of variables into a small set of variables that account for most of the variance in the original set of large variables (Laerd.com, 2015). The purpose of conducting a PCA to determine shared similarities may inform the creation of future professional development workshops for CTE teachers.

Limitations

Limitations of a research study provide valuable information for the reader to determine the usefulness of the research (Marshall & Rossman, 2011). Limitations are those aspects of the research study that may negatively affect the results and cannot be controlled by the researcher (Gay et al.). The participants of this study are Idaho CTE teachers from four of the seven CTE content areas and may not represent the population of CTE teachers across the

United States. Age, race, gender, and ethnicity may also impact the results of the study. The U. S. Census Bureau (2013) published the July 1, 2013 estimated population of Idaho at 1,612,136. Ethnicity reports of 93.7% White alone, 0.8% Black or African American alone, 1.7% American Indian and Alaska Native alone, 1.4% Asian alone, 0.2% Native Hawaiian or Pacific Islander alone, 2.2% Two or more races, 11.8% Hispanic or Latino alone, and 83.1% White alone not Hispanic or Latino. The census information reported for the United States includes 77.7% of White alone, 13.2% Black or African American, 1.2% American Indian and Alaska Native alone, 5.3% Asian alone, 0.2% Native Hawaiian or Pacific Islander alone, 2.4% Two or more races, 17.1% Hispanic or Latino alone, and 62.6% White alone not Hispanic or Latino. Idaho's population is less diverse than the United States which may result in survey response limitations.

Protection of Human Rights and Approval

It is the responsibility of the researcher to conduct research in an ethical manner. The researcher must minimize risk and respect and protect participants, including vulnerable populations (Creswell, 2008). Northwest Nazarene University's Human Research Review Committee (HRRC) reviewed, approved (see Appendix N), and assigned research approval protocol number 632014 (see Appendix O). The HRRC committee reviewed the request to amend the application to include the extension of the survey timeline and inclusion of the electronic survey deployed in September. On May 22, 2014, the researcher was notified by email indicating the HRRC amendment was approved (See Appendix P). Participants of this study voluntarily agreed to participate in the research. Participants read the research consent paragraph at the beginning of the survey (See Appendix B). Participants were advised they could exit the survey at any time with no repercussions and completing the survey indicated consent.

Chapter IV

Results

Introduction

The purpose of this quantitative study was to examine the differences in career-technical education (CTE) teachers' educational beliefs and their attitudes toward teaching reading in business education, engineering technology education, family and consumer sciences, and skilled and technical sciences classrooms in Idaho high schools when both CTE content area and teacher certification levels were considered.

A quantitative study of 291 Idaho high school career-technical education business technology, engineering technology education, family and consumer sciences, and skilled and technical sciences teachers was conducted using a paper-pencil survey which combined Silvernail's Educational Beliefs Questionnaire (EBQ) and Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms survey instruments. The study analyzes teachers' attitudes and beliefs toward teaching reading in career technical education content classrooms as measured by the Idaho High School Literacy Survey. Quantitative correlation methods were used, including descriptive analysis using Chi-Square, Analysis of Variance (ANOVA), and Pearson-Correlations.

The researcher used quantitative research techniques to answer two research questions:

1. Is there a difference in the three subset scores of the Educational Beliefs Questionnaire (EBQ) between teachers in each of four high school CTE content areas and between Idaho teacher certification levels?
2. Is there a difference in teacher attitudes about integrating CCSS literacy for technical subjects in Idaho high schools as measured by Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms, between teachers in each of four high school CTE content areas and between Idaho teacher certification levels?

Quantitative Results

The results of the quantitative study exploring literacy and career technical education instructional beliefs in Idaho schools are reported in this chapter. IBM SPSS 22 ™ was used to conduct all statistical analyses.

The results of this study were calculated based on responses from 291 Idaho high school teachers. Of these, 255 (87.6%) attended the 2014 Idaho Professional-Technical Educators' Annual Summer Conference and 36 (12.4%) did not attend. Of the teachers who reported their program area, 108 (37.1%) were Business Management and Marketing; 41 (14.1%) were Engineering Technology Education; 82 (28.2%) were Family and Consumer Sciences; 52 (17.9%) were Skilled and Technical Sciences; and 7 (2.4%) reported other. Of the 291 participants who reported gender, 112 (38.5%) marked male and 179 (61.5%) female. Participants were asked to report the number of students in their high schools. They reported 227 (78%) in grades 9-12; 39 (13.4%) in grades 10-12. Twenty-one (7.2%) reported other student population category, consisting of one grade 6-8; five grades 6-12; four grades 7-9; six grades 7-12; one grades 8-12; one grades 9-12; and three grades 11-12.

Silvernail's EBQ was administered to measure CTE teachers' underlying educational philosophy subscale. Based on this current research study, the 21-item EBQ had an above average level of internal consistency with a Cronbach's alpha of .668. The traditionalism subscale consisted of eight questions and had an above average level of internal consistency, as determined by a Cronbach's alpha of .680. The progressivism subscale consisted of six questions and had an above average level of internal consistency with Cronbach's alpha of .620. The romanticism subscale consisted of seven questions and had a high level of internal consistency as demonstrated with a Cronbach's alpha of .755 (Bland & Altman, 1997).

Figure 2 illustrates survey respondents by gender and content area. Business education and FCS programs are heavily dominated by female instructors. Business education respondents

included 75 females and 33 males. FCS respondents included 81 females and one male. ETE and STS programs are primarily represented by male instructors. ETE respondents included 33 males and 8 females. STS respondents included 41 males and 11 females.

Figure 2

Demographics by Gender and CTE Content Area

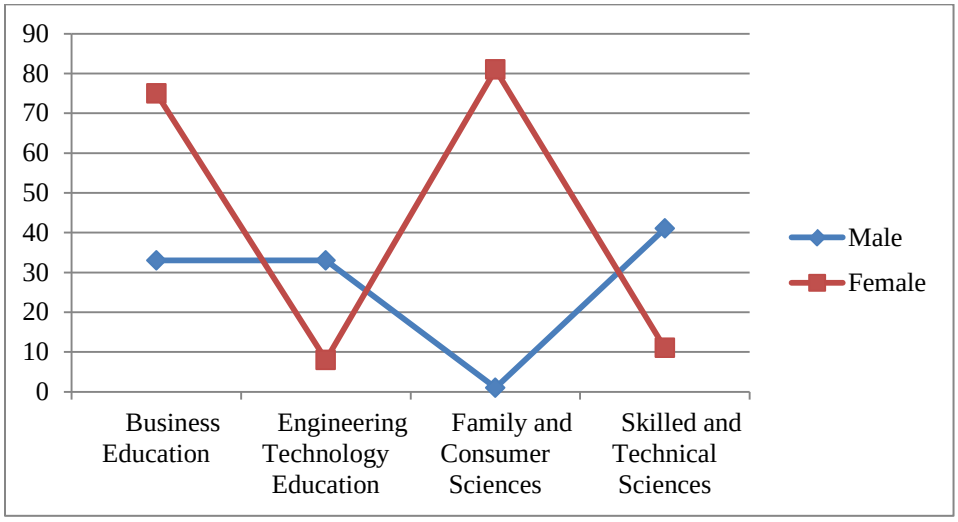


Table 10 disaggregates the demographic data to demonstrate number of years instructors spent in industry working within their CTE content area. For example, a STS instructor who now teaches automotive technology may have worked in an automotive repair facility for a number of years prior to becoming an instructor. The breakdown of teachers with 10+ years of work experience in their CTE content area, as compared to the other respondents within the same CTE content area:

- 24% business education
- 45% engineering technology
- 18% family and consumer sciences
- 73% skilled and technical sciences
- 14% other

Table 10

Summary of Industry Work Experience in CTE Content Area

	<1 year	1 to 3 years	4 to 10 years	10+ years	Total
Business Management & Marketing	5	44	30	25	104
Engineering Technology Education	1	7	14	18	40
Family & Consumer Sciences	10	35	21	14	80
Skilled & Technical Sciences	1	4	9	37	51
Other	0	5	1	1	7
Total	17	95	75	95	282

Table 11 disaggregates the demographic data to demonstrate number of years instructors have taught in the CTE content area. For example, although a STS instructor may have worked in an automotive repair facility for a number of years prior to becoming an instructor; the number of years in the automotive technology classroom would be reported. The breakdown of teachers with more than 10 years of experience teaching in their CTE content area, as compared to the other respondents within the same CTE content area:

- 62% business education
- 55% engineering technology
- 47% family and consumer sciences
- 48% skilled and technical sciences

Table 11

Summary of Teaching Experience in CTE Content Area

	<1 year	1 to 3 years	4 to 10 years	10+ years	Total
Business Management & Marketing	1	14	26	66	107
Engineering Technology Education	0	3	15	22	40
Family & Consumer Sciences	3	17	23	38	81
Skilled & Technical Sciences	0	8	19	25	52
Other	0	0	5	2	7
Total	4	42	88	153	287

Table 12 provides an aggregated report of number of years of industry work experience and teaching experience in the content area. The percentage of teachers with one to three years and those with more than 10 years of industry work experience in their CTE content area mirrored each other at 32.6% each. The majority of teachers who answered the survey had more than 10 years of teaching experience in their CTE content area represented by 52.6% of respondents.

Table 12

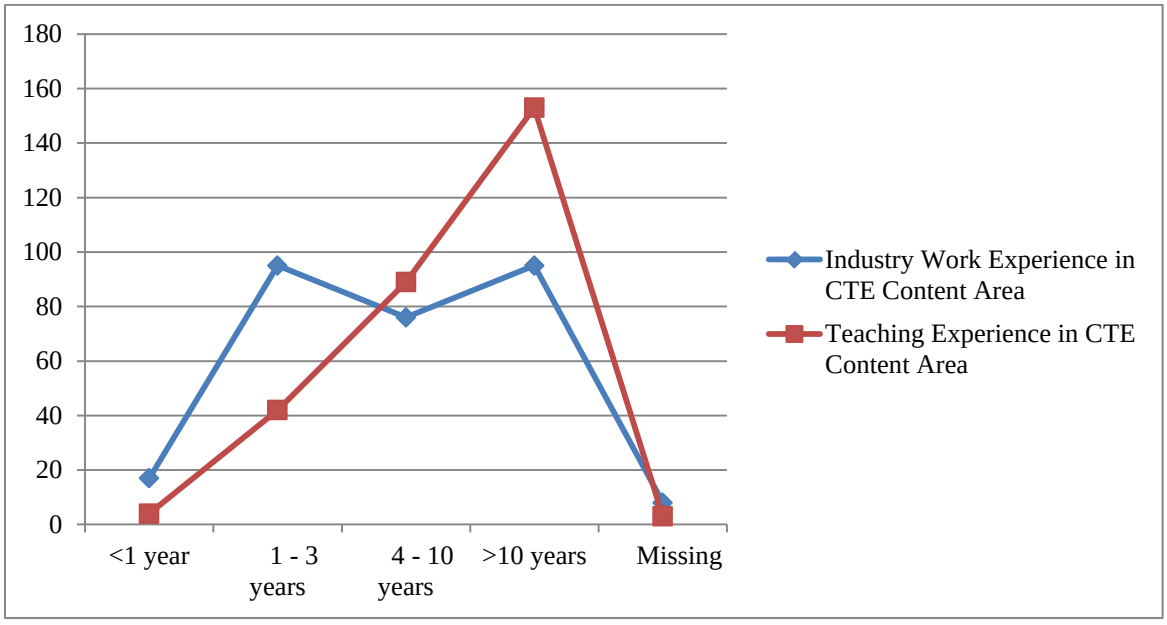
Demographics of Teacher Industry Work and Teaching Experience (n = 291)

	Industry Work Experience in CTE Content Area		Teaching Experience in CTE Content Area	
	n	*%*	*n*	*%*
Less than 1 year	17	5.8	4	1.4
1 to 3 years	95	32.6	42	14.4
4 to 10 years	76	26.1	89	30.6
10+ years	95	32.6	153	52.6
Missing	8	3	3	1
Total	291	100	291	100

Figure 3 provides an overview of responses by teachers indicating years of work experience in industry and year of teaching in the CTE content area.

Figure 3

Industry and Teaching Experience in CTE Content Area



Teacher certification served as a factor in both research questions. A chi-square test for association determines whether two categorical variables are statistically independent (Lared.com, 2015). The chi-square was conducted between gender and teacher certification levels. Seven cells had expected counts of less than 5. The minimum expected count was 1.16. There was a statistically significant association between gender and teacher certification. Specifically, underrepresented teacher certifications were identified as two males and three females with provisional certificates; four females with limited occupational specialist certification; three males with advanced occupational specialist certification; two males and one female with combined limited occupational and standard secondary teaching certification; and four females with combined standard occupational specialist and standard secondary teaching certification. Table 13 provides the chi-square results with the underrepresented populations noted in bold print.

Table 13

Chi-Square Analysis for Teacher Certification Level

Certification Level	Male	Female	Total
Provisional	**2**	**3**	**5**
Limited Occupational Specialist	10	4	14
Standard Occupational Specialist	34	14	48
Advanced Occupational Specialist	3	5	8
Standard Secondary Teaching Certificate	54	147	201
Other: Combination LOS_SSTC	**2**	**1**	**3**
Other: Combination SOS_SSTC	7	**4**	11
Total	112	178	290
% within What is the level of your current teaching certificate	38.6%	61.4%	100%

Note. Pearson Chi-Square value 42.992[a]; 6 df; p<.000

Figure 4 represents respondents by gender and teacher certification. Instructors who possess a standard secondary teaching certificate represent 69% of the entire sample of 290 respondents, who indicated level of teacher certification on the survey instrument. Of those, 54 males and 147 females reported they possess the standard credential. The second highest reported credential is the standard occupational specialist with 34 males and 14 females.

Figure 4

Teacher Certification by Gender

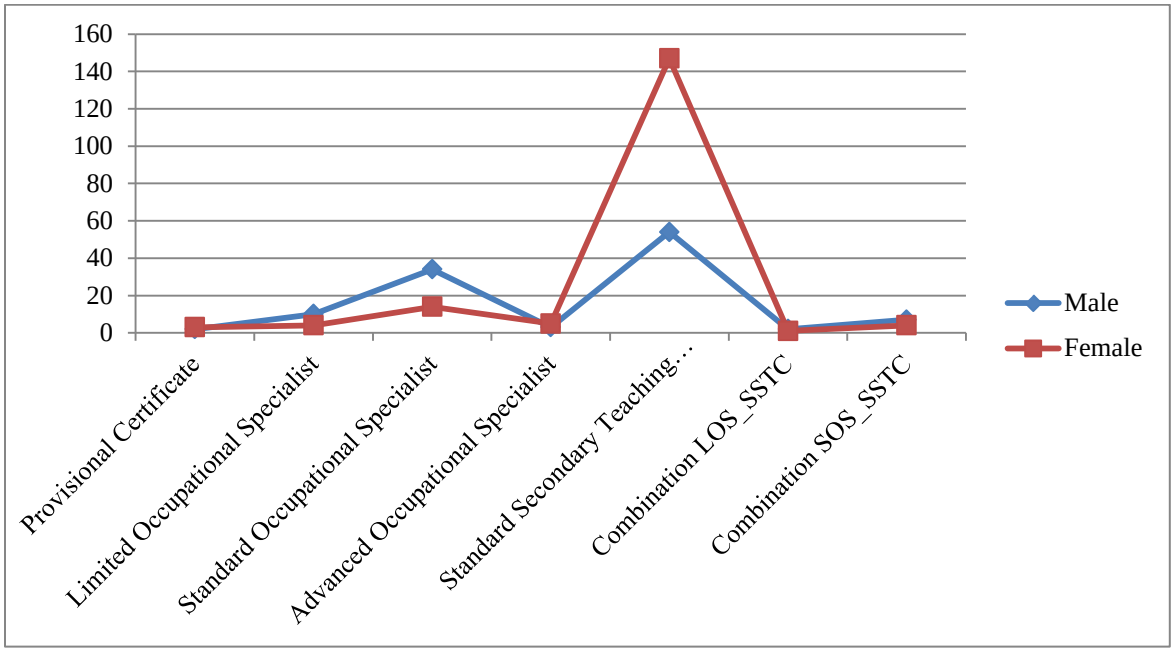


Table 14 and Figure 5 provide an overview of teacher certification type by CTE content area. Of the three levels of occupational specialist certification, 41% ETE and 71% STS instructors reported having at least one of the three occupational specialist certification types. Those reporting some form of a combination of the occupational specialist and standard secondary teaching certificate included 14% ETE and 14% STS. Instructors who possess a standard secondary teaching certificate include 89% business education and 90% FCS teachers based on responses within each content area.

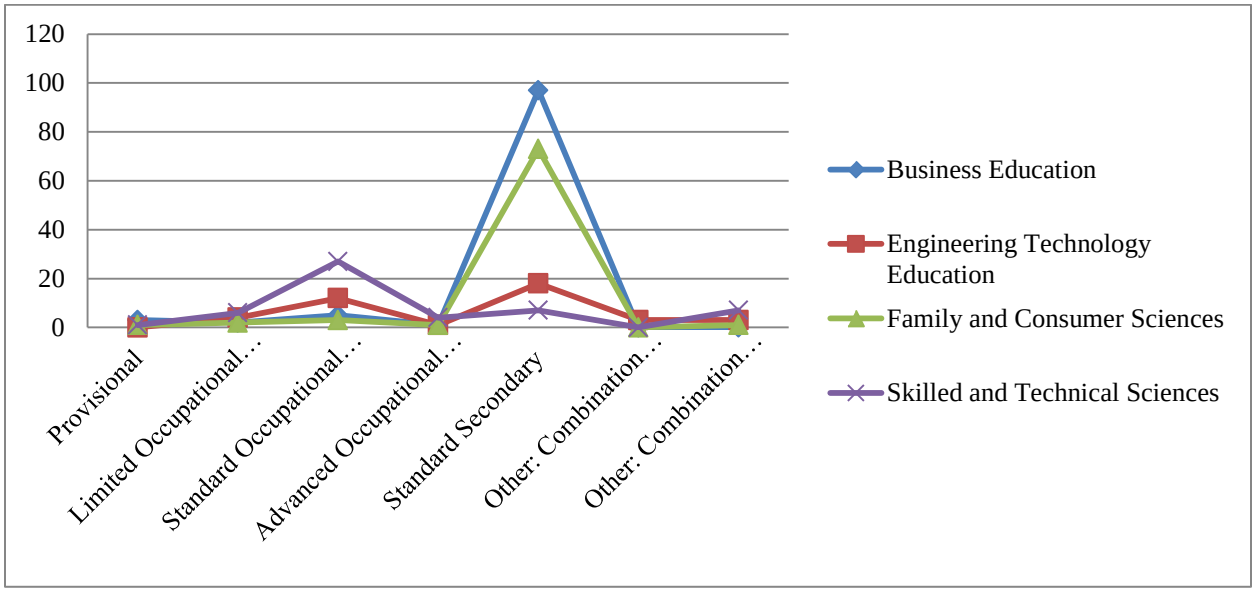
Table 14

Demographics by Certification and CTE Content Area

	Content Area									
	Business Education		Engineering Technology Education		Family and Consumer Sciences		Skilled and Technical Sciences		Other	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Certification Level										
Provisional	3	2.8	0	0	1	1.2	1	1.9	0	0
Limited Occ. Specialist	2	1.9	4	9.8	2	2.5	6	11.5	0	0
Standard Occ. Specialist	5	4.6	12	29.3	3	3.7	27	52	1	.14
Advanced Occ. Specialist	1	.9	1	2.4	1	1.2	4	7.6	1	.14
Standard Secondary	97	89	18	44	73	90	7	13.5	5	.72
Combination LOS_SSTC	0	0	3	7.3	0	0	0	0	0	0
Combination SOS_SSTC	0	0	3	7.3	1	1.2	7	13.5	0	0
Total	108	100	41	100	81	100	52	100	7	100

Figure 5

Teacher Certification by CTE Content Area



The first research question sought to discover if there a was a difference in the three subset scores of the EBQ between teachers in each of four high school CTE content areas and between Idaho teacher certification levels. Table 15 (Appendix Q) Idaho High School Literacy Survey – EBQ by item provides the mean, median, and mode responses by individual question on the EBQ.

Table 16 summarizes the mean, median, and mode responses by overall educational philosophy subscale.

Table 16

Idaho High School Literacy Survey – EBQ by Subscale

Educational Beliefs Questionnaire (EBQ)	Number of Responses (n)	Mean of the Responses	Median of the Responses	Mode of the Responses
EBQ Traditionalist Subscale	290	3.94	4.00	4
EBQ Progressivist Subscale	289	4.05	4.00	4
EBQ Romanticist Subscale	289	3.15	3.14	3.29

Table 17 provides frequency of responses for the 21-item EBQ (see Appendix R) while Table 18 provides the percentage of responses (see Appendix S). Table 19 outlines mean and standard deviation of overall EBQ educational philosophy subscale by CTE content area wherein content areas were compared to the others by EBQ subscale. Of the four CTE content areas, Skilled and Technical Sciences teachers reported the highest mean in the traditionalist subscale with $M = 4.15$ representing general agreement. Likewise, Engineering Technology Education teachers reported the highest mean in the progressivist subscale with $M = 4.15$ representing general agreement. Lastly, Business Education teachers reported the highest mean in the romanticist subscale with $M = 3.21$ representing neutral response.

Table 19

EBQ Subset Scores by CTE Content Area

	Content Area							
	Business Education		Engineering Technology Education		Family and Consumer Sciences		Skilled and Technical Sciences	
Educational Philosophy	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Traditionalist	3.91	.431	3.96	.466	3.84	.460	**4.15**	.507
Progressivist	4.05	.439	**4.15**	.459	3.98	.536	4.08	.437
Romanticist	**3.21**	.566	3.15	.506	3.13	.582	3.01	.693

EBQ subscales are reported by teacher certification type in Table 20. The mean and standard deviations are provided by teacher certification type. The larger the mean, the stronger the teachers agreed with the EBQ educational philosophy subscale. The largest mean within each certification level is identified in bold.

Table 20

Overall Summary EBQ Subscale by Certification Level

Certification Level	EBQ Subscale					
	Traditionalist		Progressivist		Romanticist	
	M	*SD*	*M*	*SD*	*M*	*SD*
Provisional	3.55	.456	**4.40**	.630	2.99	.923
Limited Occupational Specialist	**4.29**	.378	4.01	.504	3.23	.559
Standard Occupational Specialist	4.01	.552	**4.14**	.456	3.11	.660
Advanced Occupational Specialist	3.97	.349	**4.14**	.532	2.84	.595
Standard Secondary Teaching Certificate	3.90	.442	**4.02**	.462	3.18	.556
Combination LOS and SSTC	**4.21**	.402	4.11	.509	3.24	.218
Combination SOS and SSTC	**3.95**	.510	**3.95**	.473	2.83	.617

Table 21 provides descriptive statistics for the traditionalist educational philosophy as disaggregated by teacher certification level and CTE content area. Likewise, Table 22 outlines the progressivist educational philosophy subscale and Table 23 reports descriptive statistics for the romanticist educational philosophy subscale by teacher certification and CTE content area.

Table 21

Traditionalist by Certification Level and CTE Content Area

	Content Area							
	Business Education		Engineering Technology Education		Family and Consumer Sciences		Skilled and Technical Sciences	
Certification Level	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Provisional	3.67	.473	--	--	3.00	--	3.75	--
Limited Occupational Specialist	4.19	.442	4.28	.213	3.69	.088	4.52	.300
Standard Occupational Specialist	3.78	.511	4.03	.544	3.75	.000	4.09	.592
Advanced Occupational Specialist	3.50	--	--	--	4.14	--	4.169	.182
Standard Secondary Teaching Certificate	3.92	.428	3.86	.413	3.85	.473	4.23	.349
Other: Combination LOS and SSTC	--	--	4.21	.402	--	--	--	--
Other: Combination SOS and SSTC	--	--	3.71	.641	4.00	--	4.05	.504
Total	3.91	.431	3.96	.466	3.84	.461	4.15	.507

Note. Levene's Test of Equality of Error Variances F, 1.147; 24 df1; 263 df2; Sig. .292.

Table 22

Progressivist by Certification Level and CTE Content Area

	Content Area							
	Business Education		Engineering Technology Education		Family and Consumer Sciences		Skilled and Technical Sciences	
Certification Level	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Provisional	4.44	.586	--	--	--	--	--	--
Limited Occupational Specialist	3.67	.471	4.25	.419	3.67	.471	4.08	.565
Standard Occupational Specialist	4.20	.462	4.39	.446	4.00	.167	4.03	.460
Advanced Occupational Specialist	--	--	--	--	--	--	4.17	.430
Standard Secondary Teaching Certificate	4.03	.425	4.05	.365	3.97	.536	4.37	.325
Other: Combination LOS_SSTC	--	--	--	--	--	--	--	--
Other: Combination SOS_SSTC	--	--	3.66	.782	--	--	4.02	.307

Note. The EBQ Progressivist Mean is constant, and has been omitted, when the following teacher certificates are in one or more split files: Advanced Occupational Specialist, Provisional Certificate, Combination SOS_SSTC, and Standard Occupational Specialist.

Table 23

Romanticist by Certification Level and CTE Content Area

	Content Area							
	Business Education		Engineering Technology Education		Family and Consumer Sciences		Skilled and Technical Sciences	
Certification Level	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Provisional	3.10	1.30	--	--	--	--	--	--
Limited Occupational Specialist	3.29	1.01	3.29	.387	2.86	.202	3.31	.667
Standard Occupational Specialist	3.06	.480	3.19	.635	3.02	.546	3.06	.728
Advanced Occupational Specialist	--	--	--	--	--	--	2.54	.546
Standard Secondary Teaching Certificate	3.22	.548	3.06	.444	3.16	.600	3.18	.713
Other: Combination LOS_SSTC	--	--	3.24	.218	--	--	--	--
Other: Combination SOS_SSTC	--	--	3.10	.812	--	--	2.63	.537

Note. The EBQ Romanticist Mean is constant, and has been omitted, when the following teacher certificates are in one or more split files: Advanced Occupational Specialist, Provisional Certificate, Combination SOS_SSTC, and Standard Occupational Specialist.

To answer the first research question, a one-way analysis of variance was conducted to examine the differences in means between multiple groups (Gay et al., 2009). Levene's Test of Homogeneity of Variance results proved homogeneity of variance for Traditionalist subscale (p = .598), Progressivist subscale (p = .725), and Romanticist subscale (p = .147). Of the three educational philosophy subscales, the Traditionalist subscale was statistically significantly different between CTE content area groups, F (4,284) = 4.435, $p < .05$. There were no statistically significant differences in the Progressivist subscale score between CTE content area groups, F (4,283) = 1.031, p = .391. There were no statistically significant differences in the Romanticist subscale score between CTE content area groups, F (4,283) = 1.200, p = .311.

Instructors in the Skilled and Technical Sciences CTE content area scored higher on the EBQ Traditionalist educational philosophy subscale (M = 4.1532, SD = .50701) than Business Education teachers (M = 3.91, SD = .431), a mean increase of .246, 95% confidence interval, which is statistically significant (p = .014). Instructors in the Skilled and Technical Sciences CTE content area scored higher on the EBQ Traditionalist educational philosophy subscale (M = 4.15, SD = .507) than Family & Consumer Sciences teachers (M = 3.84, SD = .460), a mean increase of .314, 95% confidence interval, which is statistically significant (p = .001). No other group differences in educational beliefs subscale between CTE content areas were statistically significant.

A Kruskal-Wallis H test was conducted to determine if there were differences in EBQ subscale scores between four groups of participants with different teacher certification levels. Distributions of EBQ scale scores were similar for all groups as assessed by visual inspection of a boxplot. Median EBQ traditionalism scale scores were statistically significantly different between groups, χ^2 (6) = 15.473, p = .017. Median EBQ progressivist scale scores were not statistically significantly different between groups, χ^2 (6) = 3.897, p = .691. Median EBQ romanticist scale scores were not statistically significantly different between groups, χ^2 (6) = 8.326, p = .215

Based on the results of the first research question, the researcher became curious about the statistical significance of number of years of industry work experience and content area teacher experience as it relates to CTE content area. A one-way ANOVA was conducted with a statistically significant finding of years of industry work experience F (4, 277) = 8.316, p < .000. There was no statistically significant difference in years of CTE teaching experience F (4, 282) = 1.799, p = .129. Tukey post hoc tests confirmed a statistically significant difference in years of industry work experience between Skilled and Technical Sciences teachers and Business Education Teachers. A significant effect was also found between Skilled and Technical Sciences

Teachers and Family and Consumer Sciences teachers. There were no other statistically significant findings between years of industry experience and the other CTE content areas. There were also no significant effects found between years of CTE content teaching between all four CTE content areas.

Research Question 2 states: Is there a difference in teacher attitudes about integrating CCSS literacy for technical subjects in Idaho high schools as measured by Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms, between teachers in each of the CTE content areas and between Idaho teacher certification levels?

Vaughan's (1977) Scale to Measure Attitudes toward Teaching Reading in the Content Classroom survey was used to measure CTE teachers' attitudes toward teaching reading in their CTE content classrooms. The scale to measure attitudes consisted of 15 questions. Cronbach's alpha of $\alpha = .754$ demonstrated a high level of internal consistency (Bland & Altman, 1997). Based on 105 total points possible, Vaughan (1977) suggests teachers' attitudes toward teaching reading in the content area are measured as follows:

- High, 91 points or higher
- Above Average, 81-90
- Average, 71-80
- Below Average, 61-70
- Low, 60 or lower

The survey generated 270 valid responses on the Scale to Measure Attitudes toward Teaching Reading in the Content Classroom portion of the Idaho Literacy Survey. The minimum score was 27 points and the maximum score was 97 points, based on a total scale of 105 points. The overall mean score was 74.8 points, which ranked in the Average category, with a standard deviation of 9.06.

Table 24 (see Appendix T) outlines the mean, median, mode and standard deviation for each of the 15 statements on the Scale to Measure Attitudes toward Teaching Reading in the Content Area section of the survey instrument.

Content area. Figure 6 shows the four outliers, participant numbers 104, 146, 230, and 278. The vertical axis represents the sum score of Vaughan's Scale to Measure. The total points possible on the scale equal 105. The horizontal axis represents each of the CTE content areas included in the study. An inspection of a boxplot for values greater than 1.5 box-lengths from the edge of the box identified four outliers. The researcher checked for data entry errors and measurement errors. Finding none, the researcher chose to keep the outliers for consideration of the ANOVA test. The decision to maintain outliers as part of the statistical analysis was in an effort to maintain the integrity of the data as well as the belief that the four outliers would not materially change the results of the analysis (Laerd, 2015). The scale to measure attitudes sum total (STM_Total_Sum) score was normally distributed for all CTE content areas and level of teacher certification groups, as assessed by Shapiro-Wilk's test (p = >.05).

Figure 6

Vaughan's Scale Boxplot Outliers

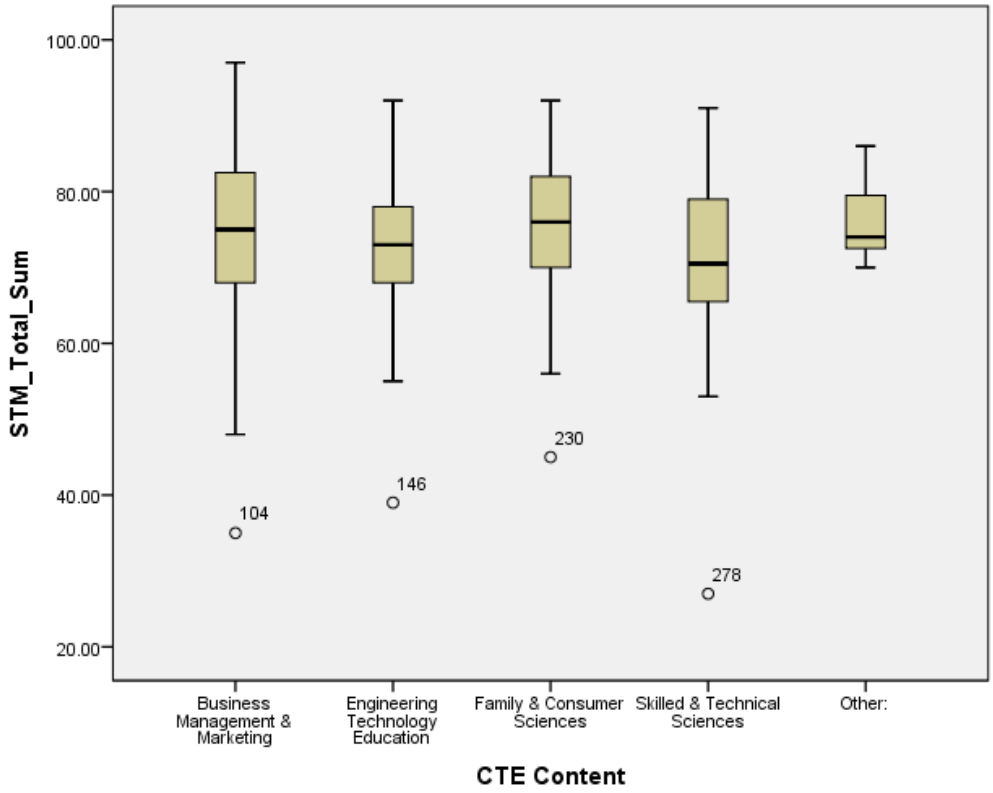


Table 25 represents the results of participants' Vaughan Scale scores by content area.

Table 25

Vaughan's Scale Score by CTE Content Area

	Vaughan Scale Score		
CTE Content Area	*n*	*M*	*SD*
Business Education	108	74.67	10.18
Engineering Technology Education	40	72.23	9.94
Family and Consumer Sciences	82	75.29	8.74
Skilled and Technical Sciences	85	70.84	11.31

Note. Levene's Test of Equality of Error Variances on STM total points scale by CTE content area, F (4, 284) = .887, $p < .472$

The one-way ANOVA found no statistically significant difference in Vaughan's Scale Score by CTE content area, F (4, 284) = 2.175, p = .072. Table 26 details underrepresented Vaughan Scale scores. Figure 7 provides bar chart overview of Vaughan's Scale Scores. Table 27 provides mean and standard deviation of Vaughan's Scale by teacher certification levels.

Table 26

Vaughan's Scale Chi-Square

STM Attitude Interpretation	Observed N	Expected N
Low	**21**	58.0
Below Average	81	58.0
Average	112	58.0
Above Average	67	58.0
High	**9**	58.0
Total	290	

Figure 7

Vaughan's Scale Score Interpretation Code

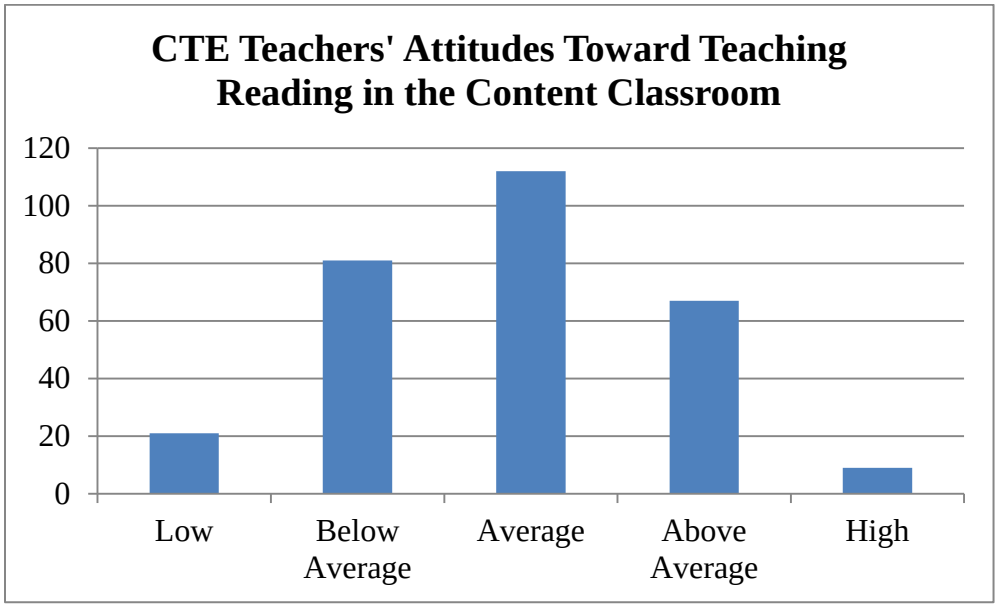


Table 27

Vaughan's Sum Scale Scores by Certification Level

	Sum Total Scale to Measure		
Teacher Certification	*n*	*M*	*SD*
Provisional	5	80.40	10.14
Limited Occupational Specialist (LOS)	14	66.86	10.83
Standard Occupational Specialist (SOS)	47	71.91	11.68
Advanced Occupational Specialist (AOS)	8	79.13	9.76
Standard Secondary Teaching Certification (SSTC)	201	74.22	9.24
Combination LOS_SSTC	3	77.00	5.00
Combination SOS_SSTC	11	76.27	10.96

Note. Levene's Test of Equality of Error Variances on STM total points scale, F (6,282) = .632, $p < .705$

Figure 8 represents the boxplot view of Vaughan's Scale Interpretation codes:

- 1= Low
- 2 = Below Average
- 3 = Average
- 4 = Above Average
- 5 = High

Vaughan's Scale Scores based on teacher certification showed no outliers in the data, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths from the edge of the box (Laerd, 2015).

Figure 8

Vaughan's Attitude Interpretation Boxplot

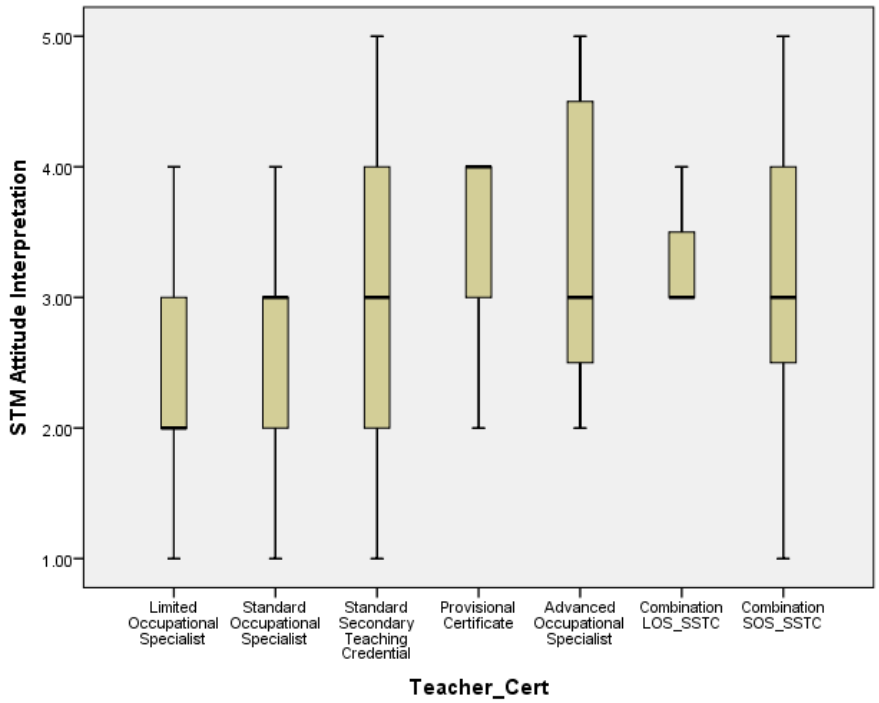


Table 28 details the Vaughan Scale mean and standard deviation based on the interpretation code listed above of 1 (low) to 5 (high).

Table 28

Vaughan's Scale by Certification and CTE Content Area

	Content Area							
	Business Education		Engineering Technology Education		Family and Consumer Sciences		Skilled and Technical Sciences	
Certification Level	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Provisional	3.3	1.2	--	--	4.0	--	3.0	--
Limited Occupational Specialist	2.5	.71	2.8	1.3	2.0	.00	1.8	.75
Standard Occupational Specialist	3.6	.89	2.7	1.1	2.7	1.5	2.6	.80
Advanced Occupational Specialist	3.0	--	5.0	--	3.0	--	3.25	1.5
Standard Secondary Teaching Certificate	2.8	.97	2.5	.89			2.3	1.1
Other: Combination LOS_SSTC			3.3	5.8	--	--	--	--
Other: Combination SOS_SSTC			3.0	.00	4.0	--	3.1	1.5

To answer the second research question, a one-way ANOVA was conducted to examine the differences in means between multiple groups (Gay et al., 2009). Levene's Test of Homogeneity of Variance results proved homogeneity of variance for Vaughan's Scale (p = .709). The one-way ANOVA resulted in F (6,282) = 2.737, $p < .05$ at a significance level of .013. Tukey post hoc tests confirmed statistically significant differences in the Vaughan Scale scores of Standard Secondary Teaching Certificate (n = 201) and Limited Occupational Specialist (n = 14). A significant effect was also found between Advanced Occupational Specialist (n = 8) and Limited Occupational Specialist (n = 14). Data shows teachers with standard secondary certificates and those with advanced occupational specialists scored higher on the Vaughan Scale than teachers who hold limited occupational specialist certificates.

Educational philosophy commonalities among CTE teachers. The first research question identified differences between CTE teachers with regard to EBQ educational philosophy subscales. In an effort to gain a better understanding, the researcher sought to identify commonalities among CTE teachers to find out if they share common beliefs related to their EBQ educational philosophy subscale. A principal components analysis (PCA) was conducted on the EBQ 21-question survey that measured teachers' educational philosophical belief subscale as validated by Dr. David Silvernail (1992). Using Laerd Statistics, suitability of PCA was assessed prior to analysis. Inspection of the correlation matrix revealed 19 variables with at least one correlation coefficient greater than 0.3. Two variables EBQ_P12 and EBQ_P14 had at least one correlation coefficient approaching 0.30 at .289 and .131 respectively. The researcher chose to retain the variables in the PCA analysis in order to later compare results to a similar research study conducted by Dr. Cynthia Adams (2011). The overall Kaiser-Meyer-Olkin (KMO) measure was 0.70 (rounded from 0.696). Kaiser (1974) considers KMO classifications greater than 0.7 as 'middling' to 'meritorious'. The data is suited to factor analysis based on Bartlett's Test of Sphericity which was statistically significant ($p < .05$).

PCA revealed seven components with eigenvalues greater than one which explained 14.6%, 13.4%, 9.3%, 6.5%, 5.3%, 5.2% and 4.9% of the total variance, respectively. The scree plot revealed a visual indication that four components should be retained (Cattell, 1966). A four-component solution explained 43.8% of the total variance. However, a three-component solution met the interpretability criterion of providing a simple solution rotated component matrix. In order to later compare and contrast results to those of Adams (2011), three components were retained.

The three-component solution explained 37.3% of total variance. A Varimax orthogonal rotation was used to interpret the data. The rotated solution met Thurstone's (1947) criteria of 'simple structure.' The interpretation of the data was consistent with the educational philosophy

subscales the questionnaire was designed to measure with strong loadings of romanticist items on Component 1, traditionalist items on Component 2, and progressivist items on Component 3. Component loadings and communalities of the rotated solution are presented in Table 29.

Table 29

Rotated Structure Matrix for PCA with Varimax Rotation

Items	Rotated Component Coefficients			
	Component 1	Component 2	Component 3	Communalities
EBQ_R21	**.708**	-.058	-.061	.508
EBQ_R17	**.672**	-.007	.193	.489
EBQ_R16	**.664**	.024	.233	.496
EBQ_R15	**.635**	-.032	-.064	.409
EBQ_R19	**.588**	.175	-.189	.412
EBQ_R20	**.515**	.022	.154	.289
EBQ_R18	**.470**	-.154	**.353**	.369
EBQ_T5	.008	**.721**	-.024	.520
EBQ_T8	-.150	**.681**	-.133	.503
EBQ_T2	.036	**.651**	-.030	.426
EBQ_T7	-.012	**.576**	-.051	.334
EBQ_T4	-.047	**.544**	.015	.299
EBQ_T3	.124	**.499**	.148	.286
EBQ_T6	-.213	**.466**	.293	.348
EBQ_T1	.185	**.364**	.135	.185
EBQ_P13	.013	.049	**.703**	.496
EBQ_P12	.007	.088	**.637**	.414
EBQ_P11	.102	-.125	**.602**	.389
EBQ_P10	-.063	.123	**.530**	.300
EBQ_P9	.147	.174	**.484**	.286
EBQ_P14	.087	-.088	.249	.077

Note. Major loadings for each item are bolded

Business education. A PCA was conducted with the content area value of business education teachers wherein three factors were extracted, accounting for 39.1% of variance. Table 30 displays the first component as the romanticist variable, representing 15.8% of all variance. The second component emerged as the traditionalist variable, representing 12.6%% of all variance. The final factor extracted is documented as the third component signifying the progressivist variable, representing 10.7%% of all variance.

Table 30

Factor Loadings with Varimax Rotation for EBQ of Business Education Teachers

	Component		
Educational Philosophy	1	2	3
Traditionalist			
EBQ_T1		.349	.360
EBQ_T2		.726	
EBQ_T3	.330	.561	
EBQ_T4		.601	.460
EBQ_T5		.631	
EBQ_T6	-.366	.484	
EBQ_T7		.410	
EBQ_T8		.640	
Progressivist			
EBQ_P9			.323
EBQ_P10			.516
EBQ_P11			.686
EBQ_P12			.625
EBQ_P13			.604
EBQ_P14		-.425	
Romanticist			
EBQ_R15	.536		-.331
EBQ_R16	.539		
EBQ_R17	.612		
EBQ_R18	.544		
EBQ_R19	.736		
EBQ_R20	.474		
EBQ_R21	.726		

Engineering technology education. Three factors, accounting for 44.4% of all variance, were also extracted in the PCA conducted on engineering technology education teachers. Table 31 displays the first component as the traditionalist variable, representing 19.9% of all variance. The second component emerged as the progressivist variable, representing 14.7% of all variance. The final factor extracted is documented as the third component signifying the romanticist variable, representing 9.8% of all variance.

Table 31

Factor Loadings with Varimax Rotation for EBQ Scores of ETE Teachers

	Component		
Educational Philosophy	1	2	3
Traditionalist			
EBQ_T1	.517		.369
EBQ_T2	.484	.460	
EBQ_T3			
EBQ_T4	.625		
EBQ_T5	.710	.336	
EBQ_T6		.605	
EBQ_T7	.755		
EBQ_T8	.764		
Progressivist			
EBQ_P9		.377	.325
EBQ_P10		.666	
EBQ_P11		.674	
EBQ_P12		.610	
EBQ_P13		.583	
EBQ_P14			.520
Romanticist			
EBQ_R15			.708
EBQ_R16			.559
EBQ_R17			.809
EBQ_R18			.610
EBQ_R19	.693		
EBQ_R20			.638
EBQ_R21			

Family and consumer sciences. Three factors were also extracted in the PCA that was conducted on the family and consumer sciences teachers. Those three extracted factors accounted for 39.7% of all variance. Table 32 displays the first component as the romanticist variable, representing 16.5% of all variance. The second component emerged as the traditionalist variable, representing 12.3% of all variance. The final factor extracted is documented as the third component signifying the progressivist variable, representing 10.9% of all variance.

Table 32

Factor Loadings with Varimax Rotation for EBQ Scores of FCS Teachers

	Component		
Educational Philosophy	1	2	3
Traditionalist			
EBQ_T1		.390	
EBQ_T2		.602	
EBQ_T3		.541	
EBQ_T4			
EBQ_T5		.581	
EBQ_T6		.378	
EBQ_T7		.481	
EBQ_T8		.561	
Progressivist			
EBQ_P9			.446
EBQ_P10			.539
EBQ_P11		-.501	.515
EBQ_P12			.769
EBQ_P13			.641
EBQ_P14			.504
Romanticist			
EBQ_R15	.724		
EBQ_R16	.684		
EBQ_R17	.670		
EBQ_R18	.717		
EBQ_R19	.339	.463	
EBQ_R20	.534		
EBQ_R21	.798		

Skilled and technical sciences. Finally, the PCA conducted on skilled and technical science education teachers also used three factors which accounted for 47.6% of variance. Table 33 displays the first component as the romanticist variable, representing 21.7% of all variance. The second component emerged as the traditionalist variable, representing 15.1% of all variance. The final factor extracted is documented as the third component signifying the progressivist variable, representing 10.8% of all variance.

Table 33

Factor Loadings with Varimax Rotation for EBQ Scores of STS Teachers

	Component		
Educational Philosophy	1	2	3
Traditionalist			
EBQ_T1		.528	
EBQ_T2		.438	.359
EBQ_T3			.589
EBQ_T4		.716	
EBQ_T5		.716	
EBQ_T6			.682
EBQ_T7		.549	.457
EBQ_T8		.721	
Progressivist			
EBQ_P9			.656
EBQ_P10			.518
EBQ_P11	.377		.363
EBQ_P12	.415		.579
EBQ_P13			.586
EBQ_P14		.447	
Romanticist			
EBQ_R15	.611		
EBQ_R16	.788		
EBQ_R17	.748		
EBQ_R18		-.609	.370
EBQ_R19	.585		
EBQ_R20	.574		
EBQ_R21	.786		

Table 34 (see Appendix U) provides a summary of EBQ PCA factor loadings by CTE content area. Each item is listed individually by EBQ educational philosophy subscale. Those items with factor loadings across content areas are marked with an asterisk. Those items which

were not shared across the four CTE content areas are not marked with an asterisk and represent items not commonly shared among the four CTE content areas.

Summary of Results

Data was collected using a quantitative research design. A total of 291 participants completed a large enough portion of the survey to be considered in the research study. The survey developed consisted of seven demographic questions and two previously validated survey instruments, Silvernail's (1992) 21-question Educational Beliefs Questionnaire, and Vaughan's (1977) 15-question Scale to Measure Attitudes toward Teaching Reading in the Content Area questionnaire. Together the final product resulted in a 43-question Idaho Literacy Survey (See Appendix B). Silvernail's (1992) EBQ measured teacher educational philosophy subscale based on a five point Likert-scale. Vaughan's (1977) Scale to Measure questionnaire ranked teacher's attitudes toward teaching reading in the content area based on a seven point Likert-scale. The EBQ educational philosophy orientations of traditionalist, progressivist, and romanticist were analyzed using ANOVA at the $p < .05$ level. Cronbach's alpha was calculated on each educational philosophy subscale to ensure reliability within the survey. A principal components analysis (PCA) was also conducted on the EBQ to determine factor loadings by educational philosophy orientation subscale.

Chapter V

Conclusion

Introduction

As a nation, the United States and its educational system faces many challenges, including dismal adolescent literacy rates, achievement gap between reading skill and college and career readiness, implementation of Common Core State Standards, and enactment of federal legislation such as No Child Left Behind which includes high stakes testing for students (Biancarosa & Snow, 2006; Bottoms, 2008; Greenleaf & Hinchman, 2009) .

Educators and administrators continue to look for solutions to the low adolescent literacy rates and widening achievement gap (ACTE, 2009; Biancarosa & Snow, 2006; Bottoms, 2008; Hathaway, 2009; Jacobs, 2008; Meeder & Suddreth, 2012). In order for students to be college and career ready, they must possess literacy skills which will prepare them for the rigors of reading in college and the workplace (Anderson, 2013; Anderson, 2008; Brand et al.; Fletcher, 2006; Gordon et al; Holzer et al.; Kist, 2013; Meeder & Suddreth, 2012; White & Boling, 2013; Wright, Washer, Watkins & Scott, 2008). The U. S. economy depends on a skilled workforce. Secondary and postsecondary institutions educate the people who will eventually enter the workforce (ACTE, 2009; Bottoms, 2008; Brand et al.; Holzer et al.; Jacobs, 2008).

Career and technical educators and academic teachers work with students to prepare them with the knowledge, skills, and abilities necessary to be successful in the global economy (Rojewski & Hill, 2014). CTE teachers are poised to integrate academic literacy skills into CTE content classrooms (ACTE, 2009; Bottoms, 2008). In addition to academic integration, CTE teachers offer the opportunity for students to participate in CTE student organizations (CTSO). Students are able to apply and reflect upon what they have learned in the classroom at CTSO competitive events, fundraising, and community service projects.

In order for CTE teachers to successfully integrate CCSS literacy instruction into CTE content classrooms, it is important to understand the teachers' educational philosophy orientations, such as Silvernail's (1992) traditionalist, progressivist, and romanticist subscales, which serve as the theoretical framework for this study. In order for CTE teachers to integrate reading instruction in the CTE content classroom, it is important to understand their attitudes and beliefs toward teaching reading in the content area. It is helpful to compare and contrast academic teachers' beliefs and those of CTE content teachers. Research findings regarding teacher attitudes and beliefs will assist administrators in creating meaningful professional development opportunities for teachers (Carpenter et al., 1989; Cole, 1992; Duffy et al., 1986; Marek & Methven, 1991; McCutchen et al., 2002; McGill-Franzen et al., 1999; Saxe et al.; Sloan, 1993; Tienken, 2003; Yoon et al., 2007).

In preparing professional development, it is helpful to understand teacher certification and its relationship to teachers' attitudes and beliefs. For example, in Idaho, CTE teachers traditionally come to the classroom through a variety of routes. Many teachers graduate from a four-year university teacher preparation program. Other teachers may have completed some college, but come directly from industry and the workforce. Idaho CTE teachers represented in this study reported the following teacher certificates:

- Provisional
- Limited Occupational Specialist (LOS)
- Standard Occupational Specialist (SOS)
- Advanced Occupational Specialist (AOS)
- Standard Secondary Teaching Certificate (SSTC)
- Combination SSTC_LOS
- Combination SSTC_SOS

The purpose of this quantitative study was to examine the differences in CTE teachers' educational beliefs and their attitudes toward teaching reading in business education, engineering technology education, family and consumer sciences, and skilled and technical sciences classrooms in Idaho high schools when both CTE content area and teacher certification levels were considered.

The quantitative study focused on two specific research questions: 1) Is there a difference in the three subset scores of the Educational Beliefs Questionnaire (EBQ) between teachers in each of four high school CTE content areas and between Idaho teacher certification levels? And 2) Is there a difference in teacher attitudes about integrating CCSS literacy for technical subjects in Idaho high schools as measured by Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms, between teachers in each of the CTE content areas and between Idaho teacher certification levels?

Summary of Results

To answer the two research questions, a quantitative research design was selected. The quantitative study included a paper-pencil survey and followed up with the same questions in an electronic survey created using Qualtrics software (See Appendix C). The survey was deployed on site at the Idaho PTE Summer Conference, June 15-18, 2014, in Boise, Idaho. Four CTE content area groups were surveyed, and 234 teachers completed the survey at the conference. The survey was also disseminated to Idaho CTE teachers by the state program managers and was available online during the first two weeks of September, 2014. Idaho CTE teachers in business education, engineering technology education, family and consumer sciences, and skilled and technical sciences were invited to participate in the study. The survey instrument combined Silvernail's (1992) 21-question Educational Beliefs Questionnaire (EBQ) and Vaughan's (1977) 15-item Scale to Measure Attitudes toward Teaching Reading in the Content Classroom. The

survey also included seven demographic questions for a total of 43 questions on the Idaho High School Literacy Survey (See Appendix B).

Silvernail's (1992) EBQ 21 questions were measured on a "Strongly Disagree" 1 to "Strongly Agree" 5. The purpose of the EBQ was to measure teachers' educational philosophy orientation subscales of traditionalist, progressivist, and romanticist.

Research Question 1

The first research question sought to determine if there are differences in the three subset scores of the Educational Beliefs Questionnaire (EBQ) between teachers in four high school CTE content areas and concerning Idaho teacher certification levels.

The importance of surveying teachers to determine their educational philosophy was to better understand teachers' attitudes and beliefs about their role as CTE educators. One anticipated side benefit of this research is to provide information which will assist CTE administrators to create meaningful professional development opportunities. Participating CTE teachers rated their survey answers on a Likert-type scale of "Strongly Disagree" 1 to "Strongly Agree" 5. The scores for each subscale are summed and averaged. Subscale scores range from 1 to 5 with higher scores representing greater agreement with the corresponding educational philosophy. In the current study, both traditionalist and progressivist reported similar mean scores of 3.94 and 4.05, respectively. The romanticist subscale generated the lowest overall mean of responses with a neutral score of 3.15. Although the overall mean of responses resulted in the highest score for the progressivist subscale and lowest score for the romanticist subscale, interestingly a significant difference was found in the traditionalist educational philosophy wherein scores of skilled and technical sciences teachers were higher than those of the business education and family and consumer sciences teachers. Skilled and technical sciences teachers enter the teaching profession primarily through industry. Those teachers have at least three years of experience, most with eight or more years of industry work experience prior to entering the

classroom. It may be that they have such a vast knowledge of work experience and safety information to share; they score high as a traditionalist because they believe they are the deliverers of knowledge, and students are the receivers. They may believe lecturing students is the best way to impart their industry and experience and knowledge to the students.

No significant differences were found in the progressivist and romanticist educational philosophies. This lack of significant findings does not mean teachers do not believe in fostering the intellectual process or schools providing sources of new ideas. Rather, it means overall teachers did not score significantly higher on the progressivist or romanticist educational philosophy over traditionalist.

The study revealed a significant difference between skilled and technical sciences and family and consumer sciences teachers related to their educational philosophy orientation. Skilled and technical sciences teachers scored much higher on the traditionalist EBQ subscale. This finding was in contrast to what the researcher hypothesized as family and consumer sciences teachers are predominantly trained in four-year university teacher preparation programs, which include courses on methods of teaching CTE (IDPTE, 2015). As such, the researcher predicted family and consumer sciences teachers may be more traditionalist than instructors who came to teaching directly from industry. The assumption being skilled and technical sciences teachers have worked in industry and they may be more hands on or hold the progressivist educational belief. The progressivist teachers tend to facilitate the course, rather than be the givers of knowledge, and provide more hands-on activities versus delivering straight lecture. The researcher found just the opposite. It may be that because skilled and technical sciences teachers come directly from industry, they are secure in their content knowledge, but not as secure in methods of teaching. Therefore, they may see themselves as the deliverers of knowledge and the students as receivers of knowledge. The family and consumer sciences teachers, although trained

by four-year university teacher preparation programs, may see themselves more as the facilitator of knowledge and allow students to participate in more hands-on activities.

Silvernail's (1992) research on the educational philosophies of 284 secondary school teachers found most teachers to be in agreement with the progressivist subscale. The teacher participants from a northern New England state represented five high schools of grades 9-12. English teachers agreed with the progressivist subscale significantly higher than math or science teachers. In Silvernail's (1992) research, males agreed more with the traditionalist philosophy than female teachers. Similar to Silvernail's (1992) research, the current study resulted in an overall agreement with the progressivist educational philosophy among Idaho CTE teachers. Skilled and technical sciences teachers scored significantly higher on the traditionalist subscale than business education and family and consumer sciences teachers. The current research included 41 male and 11 female skilled and technical sciences teachers. Silvernail's (1992) research found males to score high on the traditionalist educational philosophy subscale; the current research found the group with the highest percentage of males to also score higher on the traditionalist subscale.

Similar to Silvernail's (1992) research, the current study did not find one particular educational philosophy more dominant than another. Both studies resulted in showing teachers are in general agreement with all three EBQ educational philosophies of traditionalism, progressivism, and romanticism. Silvernail's (1992) study focused on academic English, mathematics, and science teachers. The current research focused on CTE teachers in business education, engineering technology education, family and consumer sciences, and skilled and technical sciences. Silvernail (1992) shares a possible explanation of the reason teachers may concurrently support multiple belief systems when he quoted McAtee and Punch (1977) saying, "high belief scale scores may be more indicative of social desirability response bias than personal beliefs" (Silvernail, 1992, p. 165). In other words, teachers may subconsciously answer based on

their desire for social acceptance rather than on true beliefs. Although previous studies have shown differences in EBQ educational philosophy subscores among academic teachers, the current research study is the only study found to use EBQ to measure educational philosophy beliefs of CTE teachers. By framing the research around the theory of teachers' educational beliefs, their philosophical educational belief subscale allowed the researcher to categorize these beliefs as they relate to teachers' attitudes and beliefs toward teaching reading in their CTE content area. This is important due to the national movement to teach CCSS and prepare students to be college and career ready. The theoretical framework also allowed the researcher to cluster beliefs by level of teacher certification.

Adams (2011) conducted a dissertation research study wherein she used Silvernail's (1992) EBQ and Vaughan's (1977) Scale survey instruments to determine the differences in attitudes toward teaching reading in Alabama high school academic English, science, and social studies classrooms. Her study revealed no significant differences between content areas for traditionalist or progressivist EBQ education philosophy subscales. She did find a significant effect between content areas for teachers whose EBQ scores ranked in the romanticist subscale. She found social studies teachers scored significantly higher on the romanticist subscale than the English language arts teachers.

While Adams (2011) studied academic teachers in Alabama, this research study focused on CTE teachers in Idaho. A significant difference in EBQ romanticist scores was found by Adams (2011) for social studies teachers. The romanticist educational philosophy subscale is based on sources of new social ideas where the teacher guides the students to the natural development of each child. It makes sense that the social studies teachers scored higher on the romanticist subscale because of their focus on society and culture. The current CTE research showed a significant difference of Skilled and Technical Sciences CTE teachers ranking higher on the traditionalist education philosophy subscale than both business education and family and

consumer sciences groups of teachers. The traditionalist educational philosophy is based on the teacher, who is a strong authority figure, transmitting essential knowledge to students through drill and practice (Silvernail, 1992). The progressivist educational philosophy subscale is based on fostering the intellectual process where the instructor if a facilitator who uses inquiry to allow students to discover facts through active involvement with the curriculum (Silvernail, 1992). Skilled and technical sciences teachers earn a teacher certification based on the number of years of experience in a particular industry. Seventy-two percent of skilled and technical sciences participants in the current study reported having 10 or more years of work experience in the CTE content area. Armed with industry knowledge, but little to no teaching experience, it may be natural for them to assume they are the experts in the content and use lecture, drill, and practice to impart knowledge to the students. They tend more toward the traditionalist than progressivist or romanticist education philosophy because they are more focused on preparing students to be ready to enter the world of work upon exiting a skilled and technical sciences program.

With regard to teacher certification levels and the EBQ, Adams (2011) found a significant difference among certification levels for teachers who ranked high on the traditionalist education philosophy subscale. Specifically, teachers with emergency or alternative certification had higher traditionalist EBQ scores than all other certification types. No significant differences were found between certification levels for progressivist or romanticist educational philosophy subscales. The Idaho CTE research showed a significant difference in the traditionalist education philosophy subscale where teachers with limited occupational specialist (n = 14) teaching certificates scored higher than both standard secondary credentialed teachers and teachers with provisional certificates (n = 5). Due to the small sample size for limited occupational specialist and provisional teaching certificates, the researcher believes a larger sample size would be more meaningful. There were no significant differences

among teacher certification levels as they related to the EBQ educational philosophy subscales of progressivist or romanticist.

Based on the significant findings of skilled and technical sciences teachers scoring higher on the traditionalist educational philosophy subscale, and considering Silvernail's (1992) finding of males scoring significantly higher on the traditionalist subscale, the researcher became curious about the gender, CTE content area, occupational certification, and years of industry work experience of skilled and technical sciences teachers. The current research sample of skilled and technical sciences teachers is $n = 52$ of which 41 (79%) are male and 11 (21%) are female. The researcher conducted an ANOVA on years of industry work experience and years of teaching experience in the CTE content area. The findings mirrored the EBQ traditionalist education philosophy results. A statistically significant difference was found for skilled and technical sciences teachers who had more years of work experience than both business education and family and consumer sciences teachers. This data informs administrators or professional development specialists and encourages strategic assignment of collaboration or mentoring groups. Skilled and technical sciences teachers also scored higher on the EBQ traditionalist subscale than both business education and family and consumer sciences teachers. Skilled and technical sciences teachers primarily qualify for teacher certification based on their years of experience in the field. Business education and family and consumer sciences teachers primarily qualify for teacher certification based on graduating from a four-year teacher preparation program (IDPTE, 2015). Therefore, it makes sense that the skilled and technical sciences teachers would have more years of work experience than either business education or family and consumer sciences teachers.

Adams (2011) found no significant differences between academic "content areas for traditional, F (2,377) = .684, p = .505) or progressivist educational philosophies, F (2,377) = 1.583, p = .207)" (pg. 68). Adams (2011) found a significant effect between academic "content

areas for teachers espousing the romanticism philosophy, F (2,377) = 4.108, p = .019" (pg. 68). Adams (2011) found social studies teachers to espouse the romanticist educational philosophy more so than either English or science teachers. Social studies teachers may be interested in creating new social ideas; thus, they scored higher on the romanticist subscale. The current study found no significant differences between CTE content areas for progressivist, F (4,283) = 1.03, p = .391) or romanticist educational philosophies, F (4,283) = 1.20, p = .311. A significant effect between CTE content areas for traditionalist educational philosophy, F (2,284) = 4.435, p < .05. Skilled and technical sciences teachers espoused the traditionalist educational philosophy more so than either business education or family and consumer sciences teachers. Skilled and technical sciences teachers bring a wealth of knowledge from industry work experience; therefore, they may perceive themselves as the strong authority figure in the classroom, thus tending toward the traditionalist philosophy.

To answer the first part of the research question, the results of the ANOVA showed there is a significant difference in the three subset scores of the Educational Beliefs Questionnaire (EBQ) between teachers in four high school CTE content areas. Skilled and technical sciences teachers scored significantly higher on the traditionalist educational philosophy subscale than either business education or family and consumer sciences teachers. This finding was unexpected by the researcher because business education teachers are predominantly trained in four-year university teacher preparation programs (IDPTE, 2015). As such, the researcher assumed they may be more traditionalist than instructors who came to teaching directly from industry. The assumption being skilled and technical sciences teachers have worked in industry and they may be more hands on or hold the progressivist educational belief. The researcher found just the opposite. Specifically, the traditionalist believes in drill and practice. Business teachers teach keyboarding, computer applications, and other subjects in which drill and practice are inherent in

the curriculum. Based on that information, the researcher expected business teachers to score higher on the traditionalist subscale.

Business teachers are trained in four-year teacher preparation programs where they learn methods of teaching business education such as teaching a concept, modeling for the students, providing guided practice, and allowing students to participate in individual practice. This method of teaching lends itself to the progressivist model of instructor as a facilitator and students as active participants in their own learning. Thus, teacher beliefs are influenced by teacher preparation program and industry experience. Business teachers who participate in the four-year teacher preparation program and graduate from a university are eligible for a standard secondary teaching certificate. Based on the findings of this research study, business teachers are found to score higher on the progressivist EBQ than skilled and technical science teachers who score higher on the traditionalist EBQ score. The conclusion drawn from this information is teacher certification matters as it colors teachers' beliefs.

The second component of Research Question 1 related to CTE teacher certification. A statistically significant difference was found between certification groups for the traditionalist subscale. Teachers with Limited Occupational Specialist certification scored significantly higher in the traditionalist subscale than teachers with Standard Secondary and Provisional certificates. The sample of 291 CTE teachers included five with Provisional certification and 14 with Limited Occupational Specialist certification. Teachers with Limited Occupational Specialist certifications come to teaching primarily through the industry work experience route. Typically, those teachers are skilled and technical sciences teachers. As mentioned earlier, teachers' beliefs are influenced by either their industry work experience or teacher preparation training. It stands to reason teachers with occupational specialist certifications, which are mostly comprised of skilled and technical sciences teachers, see themselves as more traditionalist because they have knowledge to share and likely believe they are the strong authority figure in the classroom.

In summary of Research Question 1, significant differences were found in both EBQ educational philosophies wherein skilled and technical sciences teachers scored higher in the traditionalist subscale than either business education or family and consumer sciences teachers. Significant differences were found in EBQ educational philosophy wherein teachers with limited occupational specialist certifications as well as those with provisional certificates scored higher on the traditionalist subscale than teachers with standard secondary teaching certificates. Skilled and technical sciences teachers with occupational specialist teacher certifications scored significantly higher on the EBQ traditionalist philosophy subscale, indicating a strong belief in serving as the deliverer of knowledge in the classroom through drill and practice and authority where the student plays a passive role in learning. Their beliefs are influenced by work experience in business and industry. Their attitudes toward teaching have been shaped by what they learned on the job. Thus, based on this research, teacher certification is shown to make a difference in the attitudes and beliefs of teachers.

Research Question 2

The second research question explored differences in teacher attitudes about integrating CCSS literacy for technical subjects in Idaho high schools as measured by Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms, between teachers in each of four CTE content areas and between Idaho teacher certification levels.

Vaughan (1977) created a valid and reliable survey instrument to measure attitudes of teachers toward teaching reading in their content area. Scale items were based on a Likert-type scale of "Strongly Agree" 1 to "Strongly Disagree" 7. Vaughan (1977) reported his original survey instrument to have internal consistency and stability based on very high Cronbach's Alpha score of $\alpha = .87$. The current research study used Vaughan's (1977) Scale Score to determine attitudes toward teaching reading in the CTE content area.

Vaughan (1977) generated the scale to assist in identifying teachers' attitudes toward teaching reading in the content classrooms. Although he reported the instrument to be a valid means of assessing attitudes and beliefs of classroom teachers, it may not be the only instrument necessary to assess the attitudes and provide meaningful information to reading specialist and coordinators, and content area classroom teachers. As states increase expectations of teachers to prepare students to succeed in taking high-stakes tests and to become college and career ready, administrators need a means to measure teacher attitudes and beliefs toward teaching reading, and supporting literacy, in their content classrooms. Administrators need to start the conversation about including literacy in CTE classrooms. Using an instrument, such as Vaughan's, would provide data needed to make decisions about professional development for teachers to help them successfully integrate literacy into CTE classrooms in this era of CCSS.

To answer Research Question 2, a one-way ANOVA was conducted and resulted in no statistically significant difference in Vaughan's Scale Score by CTE content area, $F(4, 284) = 2.175$, $p = .072$. The current CTE research found no significant difference between the four CTE teacher content areas as measured by their scores on Vaughan's Scale. The data revealed only 3% of participants scored in the high range and 23% in the above average range on the attitude toward teaching reading in their content area. The other 74% ranked average, below average, or low attitude toward incorporating in their content area. Educators are being asked to integrate CCSS supporting literacy throughout all content areas. The data supports the notion many CTE teachers do not believe they should teach reading in their content area. University teacher preparation programs need to require students to take a minimum of one course in methods of teaching reading in the content area. Faculty in university teacher preparation programs influence teacher attitudes and beliefs toward teaching reading in their content area. By weaving the expectation of teaching reading into CTE content areas throughout the teacher preparation curriculum, faculty could positively impact what is ultimately taught in CTE classrooms.

Once teachers are in the classroom, administrators should plan professional development activities at a basic level beginning with teacher beliefs. Professional development activities should include promoting the value of integrating CCSS literacy for technical subjects, for example, demonstrating how teachers draw connections for students between reading blue prints and using them to build a structure with their hands. Using data derived from surveying teachers regarding their attitudes toward teaching reading in the content area, administrators will be able to individualize professional development offerings to meet teachers where they are at that particular time.

The second component of Research Question 2 sought to find out if there was a difference in Vaughan's (1977) scale scores based on CTE teacher certification type. Teachers with standard secondary teaching certificates are primarily trained in four-year teacher preparation programs. In those programs, teachers are either encouraged or required to take a course on teaching reading in the content area. These teachers may be more in favor of teaching reading in their CTE content area based on early exposure to such content. Teachers with limited occupational specialist credentials come to the classroom primarily from industry. Many of these teachers have either a four-year degree plus three years of industry work experience, or no college degree and eight or more years of industry work experience. The occupational specialists take several classes within the first three years of teaching. The classes are not specifically geared toward teaching reading in the content area. However, the courses do focus on methods of teaching in CTE content classrooms, classroom management, curriculum, instruction, assessment, and evaluation. To answer the question, an ANOVA was conducted and a statistical significance was found on the Vaughan Scale for the standard secondary teaching credential scoring higher than the limited occupational specialist certificate at $p = .037$. It makes sense teachers with standard secondary teaching certificates scored higher on Vaughan's (1977) Scale for teaching reading in the content area. It stands to reason that teachers with previous

coursework in methods of teaching reading in the content area would be more inclined to want to integrate CCSS literacy and teaching reading in their CTE content area. There was also a statistical significance where advanced occupational specialist scored higher than limited occupational specialist at $p = .028$. The limited occupational specialist sample was ($n = 14$) and advanced occupational specialist ($n = 8$). Although the sample size for these groups was small, the results may indicate advanced occupational specialist certified teachers have a better attitude about teaching reading in the content area after they have met the requirements to transition from a limited to an advanced occupational specialist, including finishing coursework and gaining several years of teaching experience.

Table 35 provides an overview of research findings focused on academic content teachers (Adams, 2011) and the current research focused on CTE content teachers. Both research studies resulted in significant findings on Silvernail's (1992) EBQ and content area. Data reported from the study of academic teachers found social studies teachers scored higher than other academic teachers in the romanticist education philosophy subscale (Adams, 2011). The current research found skilled and technical sciences teachers scored higher than both business education and family and consumer sciences teachers in the traditionalist education philosophy subscale. The traditionalist believes the purpose of school is to transmit knowledge via drill and practice and the student is passive in the role of learner. While content teachers show a significant effect on Vaughan's scale (Adams, 2011), CTE teachers show significant differences with teacher certification. Based on the 74% average, below average, and low responses of Idaho CTE teachers, it appears they lack the belief that they should teach reading in CTE content areas.

Table 35

Academic vs. CTE

	Academic (Adams, 2011)		CTE (Neal, 2015)	
	Significant Difference	No Significant Difference	Significant Difference	No Significant Difference
Traditionalist * Content		X	X	
Progressivist * Content		X		X
Romanticist * Content	X			X
Traditionalist * Certification		X	X	
Progressivist * Certification		X		X
Romanticist * Certification		X		X
Vaughan Scale * Content	X			X
Vaughan Scale * Certification		X	X	

Data from a research study of Alabama academic high school teachers showed no significant differences in Vaughan's Scale scores based on teacher certification (Adams, 2011). Significant differences were found in Vaughan's Scale Score for Idaho CTE teachers with standard secondary teaching certificates (n = 201) over limited occupational specialist (n = 14). Teachers with advanced occupational specialists (n = 8) scored higher than those with limited occupational specialists (n = 14).

Teachers with standard secondary teaching certificates are trained at traditional four-year university teacher preparation programs. The data supports university-prepared teachers as having a better attitude toward teaching reading in the CTE content area. The data also supports advanced occupational certified teachers have better attitudes about teaching reading in the CTE content area than their counterparts with limited occupational certificates. Both occupationally

certified teachers come to teaching from industry. However, teachers with advanced occupational specialist certificates have completed 12 credits from an accredited university and also taught in the classroom for a minimum of three years. Teacher attitudes and beliefs are influenced by education and industry work experience. Idaho CTE teachers with standard secondary and advanced occupational specialist certificates scored significantly higher on Vaughan's Scale score instrument, which indicates they have a better attitude toward teaching reading in the CTE content area. University training impacts teacher attitudes about teaching reading, which supports literacy training, in CTE content classrooms.

The Idaho Literacy Task Force Report (2014) created by Governor Otter identified literacy as an important foundational skill and reviewed existing legislation related to literacy. Strategies of Idaho's most effective schools share common characteristics such as each teacher being a reading expert, school-wide literacy leadership beginning with the principal or reading specialist, teachers collaborating, and focusing on early intervention based on research (Idaho Literacy Task Force, 2014). The findings also suggest Idaho State Department of Education should focus on and support every teacher to be a reading expert. There appears to be a gap between academic and CTE teachers' attitudes, beliefs, or ability to successfully integrate academic literacy instruction into their specific CTE content classroom (Anderson, 2008; Baxter, 2011; Boser & Burd, 2009; Bottoms, 2008; Clark, 2005; Fletcher, 2006; Lakes, 2007; Marzano, 2004; Taylor, 2001; Wendt, 2013). Recommendations to the State Board of Education included a need for Idaho Department of Education to provide professional development with a focus on the Smarter Balanced Assessment, implementation of Idaho Comprehensive Literacy Course every other year and provision of evidence-based literacy instruction and intervention for both classified staff and certified teachers (Idaho Literacy Task Force, 2014).

The Idaho Department of Education (2012) published the Idaho Comprehensive Literacy Plan: Birth – 12th Grade. The front cover includes a quote from Vicki Phillips and Carina Wong

of The Bill and Melinda Gates Foundation, “Think of literacy as a spine; it holds everything together. The branches of learning connect it to, meaning that all core content teachers have a responsibility to teach literacy.” Educating our youth is the responsibility of teachers from all content areas. Literacy and reading education does not solely lie with reading and English teachers. Including CTE teachers to all core content teachers as part of the solution to the literacy gap strengthens the spine of education and allows the system to better serve our youth. Through delivery of improved teacher preparation programs and professional development, CTE teachers will be armed with necessary attitudes, beliefs, and content knowledge to support teaching reading in CTE classrooms.

Research Question 2 was answered by conducting a one-way ANOVA, which found no statistically significant difference in Vaughan’s Scale Score by CTE content area, F (4,284) = 2.175, p = .072. Seventy-four percent of the survey participants scored average, below average, or low in their attitudes toward teaching reading in the content area. If every teacher is expected to be a reading expert, administrators have a lot of professional development work to do to overcome the high percentage of average to low attitudes toward teaching reading in CTE content areas.

The second component of Research Question 2 was answered with ANOVA results of a significant difference in Vaughan’s Scale Score for teachers with standard secondary teaching certificates (n = 201) over those with limited occupational specialist (n = 14) certificates. A significant effect was also found in Vaughan’s Scale Score for teachers with advanced occupational specialist (n = 8) over limited occupational specialist (n = 14) teaching certificates.

Conclusions

Idaho high school CTE teachers were selected to serve as the focus for this study because they are on the front line of our career technical education system. They help prepare students to be college and career ready and to become successful citizens who contribute to the well-being

of our economy (Anderson, 2013; Anderson, 2008; Brand et al., 2013; Fletcher, 2006; Gordon et al.; Holzer et al.; Kist, 2013; Meeder & Suddreth, 2012; White & Boling, 2013; Wright et al., 2008).

The concept of integrating academic and CTE content is not new. Teachers have been talking about and attempting to purposefully integrate core academics into CTE education courses for many years. Integrated learning activities provide meaningful and contextual learning for CTE students (Aguilera, 2011; Anderle, 2008; Taylor, 2001; White & Boling, 2013). As students successfully integrate core academic content into their CTE programs, they are better prepared to solve real-world problems as they prepare to enter the global workforce (Bottoms, 2008; White & Boling, 2013).

Individuals who earn a teaching certificate for a CTE content area in a traditional teacher preparation program take courses that incorporate literacy and teaching literacy in the content area. When the majority of teachers enter the profession through traditional teacher preparation programs, the assumption is they are better prepared to integrate literacy in to CTE courses. However, the data show 74% of CTE teachers report average, below average, and low attitudes and beliefs toward teaching reading in the CTE content area. As a community of educators, stakeholders including policy makers, administrators, teacher preparation educators, academic and CTE teachers need to focus on what works to move forward the agenda of closing the literacy achievement gap. Based on the data from this research, those action items should include:

- Improved teacher preparation programs including increased focus on teaching reading and value of literacy instruction in CTE programs.
- Improved university coursework for occupationally certified teachers' required 12 credits to move from limited to advanced occupational certified teaching credential.

- Improved professional development opportunities at the local school building.

January 12, 2015, marked the 50th anniversary of the introduction of the Elementary and Secondary Education Act (ESEA) now known as No Child Left Behind. On this date, U.S. Education Secretary Arne Duncan gave a speech wherein he recommended Congress discard the NCLB legislation and replace it with a law that "not only prepares children for college and careers, but also delivers on the promise of equity and real opportunity for every child" (U.S. Department of Education, January 12, 2015). Secretary Duncan called for Democrats and Republicans to work together to provide support and resources for a new law which will allow funds to be distributed among schools and provide opportunities for all students to access innovative technology, materials and supplies, and safe classrooms. Secretary Duncan closed by saying,

> Let me be clear: if we walk away from responsibility as a country – if we make our national education responsibilities optional – we would turn back the clock on educational progress. For the sake of our national promise and the health of our economy, every single young person should be able to look forward to a future that holds promise. And when so many states and districts have put in place the building blocks to sustain educational progress, when so many educators are working so hard to raise the bar for their students and support them in getting there, reversing course would be a terrible mistake. (U.S. Department of Education, January 12, 2015).

Stakeholders at the national, state, and local levels are calling for more resources and laws that will provide funding to provide improved and innovative educational opportunities to our youth (ACTE, 2009). The argument that increasing literacy rates is the responsibility of academic English teachers no longer stands. All educators must contribute to well-rounded students who are prepared to read and write at levels to be successful in high school, college,

and the workforce. Teachers need appropriate professional development to assist them in integrating reading standards into CTE curriculum (Cannon, Kitchel, & Tenuto, 2013). The purpose of this research was to study four groups of CTE teachers to determine their educational philosophical orientation as well as attitudes and beliefs toward teaching reading in CTE content areas when CTE teacher certification and content areas were considered.

The study and findings support the importance of closing the literacy achievement gap, the value of teacher attitudes and beliefs toward teaching reading in the CTE content area, and the role teacher certification plays in shaping teachers' attitudes and beliefs regarding educational philosophy and relevance of teaching literacy in high school CTE content classrooms. The data also shows teachers with standard secondary teaching certificates who enter teaching through a four-year teacher preparation program are better prepared and more willing to teaching reading in the CTE content classroom. Teachers who come to teaching through in route of industry work experience are ill-prepared to integrate literacy into the CTE content area. However, after the occupationally-trained teachers take the required university coursework and teach for three or more years, they are more apt to integrate literacy into the CTE content area.

Recommendations for Further Research

The literature review revealed Silvernail's (1992) EBQ has been used in multiple research studies related to academic content areas (Adams, 2011; Hathaway, 2009; Rideout & Morton, 2006). Vaughan's (1977) Scale survey instrument has also been used in studies based on academic content areas (Adams, 2011). While similar research has been conducted using academic teachers as the sample population, no other research was found where the EBQ and Vaughan's Scale was used on CTE teachers as the sample population. The National Research Center for Career and Technical Education has contracted with Dr. James R. Stone, III and others to conduct extensive research on the value of enhanced math learning in CTE (Stone,

Alfeld, Pearson, Lewis, & Jensen, 2006). Specifically, Stone, et al. (2006) contended that CTE instructors were not mathematics instructors, but they taught students how to use math in context, such as how to measure a square corner, but do not mention Pythagorean Theorem. This approach may address the task of simply measuring a square corner, but does not generalize beyond the immediate task. Using Stone's Math-in-CTE model provides students the opportunity to move from specific to general concepts (Stone, et al., 2006). Stone, Alfeld, and Pearson (2008) also conducted research testing mathematics instruction in five secondary CTE programs of agricultural science, business and marketing education, health professions, and information technology. Researchers considering conducting a study related to teaching literacy in CTE may wish to emulate Stone's (2006) work using an experimental and control group of CTE teachers. The experimental teachers would work closely with language arts English teachers and receive intense professional development including in-depth pedagogy training. The culminating event could be comparison of student performance on state-approved technical skills assessments as well as standardized tests, such as Smarter Balanced Assessment (SBAC). This research approach would provide valuable information regarding the effect on student performance generated by intense professional development and cooperation with academic teachers (Stone, Alfeld, & Pearson, 2008). It would also be valuable to develop a belief pre- and post-test for use in professional development training.

Additional recommendations for future research include adding a qualitative component to the research topic. In order to provide appropriate professional development to teachers, it is important to know how their beliefs are held and whether or not they are open to change. Including a qualitative component would allow teachers the opportunity to describe their beliefs outside of the traditional survey method of collecting quantitative data. During this quantitative research study, participants wrote in the margins of the survey and wanted to tell their stories. Adding a qualitative component to future research would provide a vehicle for participants to

share their attitudes and beliefs toward teaching reading in the CTE content classroom over and above what a quantitative survey can capture.

Although neither of the two research questions considered in this study asked about years of industry work experience or years of CTE teaching in the content area, the researcher conducted an ANOVA and found statistical significance F (4,227) = 8.316, $p < .000$ that skilled and technical sciences teachers have more industry work experience than either business education or family and consumer sciences teachers. The quantitative nature of the study did not allow for the researcher to ask clarifying questions or delve deeper into the questions in this study. Adding a qualitative component would allow the researcher to ask why someone with many years of industry work experience would transition out of industry into the classroom.

Future research studies would benefit from having a larger sample size of CTE instructors with a variety of teacher certifications. The current findings of significance as related to Vaughan's (1977) Scale scores of limited occupational specialist (n = 14) and advanced occupational specialist (n = 8) were not as strong as they could have been due to a small sample size of teachers with those two particular teaching certificates. It is also recommended a teacher age range be added to the demographic information to allow for additional analysis of teacher age, number of years of industry experience, and number of years of teaching experience in the content area.

Implications for Professional Practice

The purpose of this study was two-fold. First, to determine if there was a difference in the three subset scores of the Educational Beliefs Questionnaire (EBQ) of traditionalist, progressivist, and romanticist between teachers in each of four high school CTE content areas and between Idaho teacher certification levels. Second, to determine if there was a difference in teacher attitudes about integrating CCSS literacy for technical subjects in Idaho high schools, as measured by Vaughan's Scale to Measure Attitudes toward Teaching Reading in

Content Classrooms, between teachers in each of four high school CTE content areas and between Idaho teacher certification levels. The basic premise of integrating CCSS literacy for technical subjects is to teach reading in the CTE content area.

An overarching purpose of the study was to determine educational belief philosophies and attitudes toward integrating CCSS literacy for technical subjects and teaching reading in CTE content areas. A secondary purpose was to use the findings to inform the creation of meaningful professional development for career and technical educators to assist them in integrating literacy or teaching reading in their CTE content classrooms. This professional development should emphasize the importance, value, and pedagogy of contextual learning to teach students how to apply learned academic content to real-world context (Stone, 2014). For example, skilled and technical sciences teachers scored significantly higher on the traditionalist education philosophy subscale than both business education and family and consumer sciences teachers. This means skilled and technical sciences teachers may tend more toward lecture and drill and practice. Therefore, meaningful professional development for skilled and technical sciences teachers would include providing instruction on how to infuse progressivist educational philosophy concepts into their coursework, meaning more hands-on work by students and facilitation by instructor. It may mean providing professional development to business education and family and consumer sciences teachers to find areas where drill and practice may be beneficial in their programs, thus infusing parts of the traditionalist educational philosophy into their content area.

Stone (2014) summarized best when he noted policymakers at the local, state, and federal level have rediscovered career and technical education as a viable means of preparing students for college and career. He also referenced the 1983 report *A Nation at Risk*, and federal policy which has slowly had an effect of reducing high school to a point of having little value other than preparing students for the next level. Unfortunately, many of our students fail to graduate from

high school or go on to any type of postsecondary training. Stone (2014) stated, “CTE provides the link between the needs of the labor market and the needs of young people to be prepared to move into the workforce or continue their education beyond high school” (pg. 5). CTE teachers are poised to contribute to the success of students learning the academic skills employers are seeking (Bottoms, 2008; Stone, 2006, 2008, 2014).

The need to provide academic integration into professional development training to CTE teachers is warranted because of this study. Based on the contextual framework of Silvernail’s (1992) EBQ educational philosophy subscales, the results of the study provided information regarding skilled and technical sciences teachers scoring higher on the traditionalist subscale than either business education or family and consumer sciences teachers. Knowing which educational philosophy orientation teachers subscribe to will allow meaningful professional development to be created and delivered to teachers. The results showing CTE teachers in all four content areas ranked most strongly in the neutral range of attitudes toward teaching reading in their CTE content classroom allows practitioners to create professional development training for the purpose of transitioning teacher attitudes and beliefs toward ‘strongly agrees’ with integrating reading into CTE content classrooms. Based on the neutral to ambivalent responses, it makes sense to meet teachers where they are and spend time promoting the value of integrating reading instruction and support into the CTE content area.

University teacher preparation faculty contribute to influencing teachers’ educational philosophy and attitudes and beliefs about teaching reading in the CTE content area. University faculty should focus on the value of integrating literacy instruction in CTE classrooms. Doing so will have a direct impact on individuals graduating from teacher preparation programs. Teachers who come from industry through the occupational specialist teacher certification route have the opportunity to complete at least four university courses to qualify for an advanced occupational specialist certificate. Reviewing, revising, and enhancing the courses required for teachers in the

occupational specialist route will provide opportunities for improved experiences and outcomes for those individuals.

School administrators are encouraged to implement a survey instrument with faculty to determine attitudes and beliefs toward teaching reading in academic and CTE content areas. Doing so will allow the administrator to determine a baseline of attitudes and beliefs in order to develop meaningful professional development to meet teachers where they are and address those attitudes and beliefs. Individualized professional development to share strategies and best practices of integrating literacy into CTE content areas will provide opportunities for timely implementation by classroom teachers. Administrators are also urged to follow up at the end of the school year with a post-survey to measure improvement of teacher attitudes toward teaching reading in content classrooms. Doing so will provide administrators data necessary to modify and improve professional development opportunities for the next school year.

Lastly, policy makers, administrators, and university faculty are urged to champion the cause of improving integration of literacy into CTE content classrooms. Focused, sustained, and on-going professional development is necessary to achieve the goal of closing the literacy gap.

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Appendix A

Common Core State Standards--High Stakes Tests and Member States

Partnership for Assessment of Readiness for College and Careers (PARCC)	Smarter Balanced Assessment Consortium (SBAC)	Common Core Standards Not Adopted
Arkansas	California	Alaska
Colorado	Connecticut	Indiana
District of Columbia	Delaware	Minnesota
Illinois	Hawaii	Nebraska
Louisiana	Idaho	Oklahoma
Maryland	Iowa	Puerto Rico
Massachusetts	Maine	Texas
New Jersey	Michigan	Virginia
New Mexico	Missouri	
New York	Montana	
Ohio	Nevada	
Pennsylvania	New Hampshire	
Rhode Island	North Carolina	
	North Dakota	
	Oregon	
	South Dakota	
	U.S. Virgin Islands	
	Vermont	
	Washington	
	West Virginia	
	Wisconsin	
	Wyoming	

PARC: http://www.parcconline.org/about-parcc
SBAC: http://www.smarterbalanced.org/about/member-states/
CCSS Member States: http://www.corestandards.org/standards-in-your-state/

Appendix B

Idaho High School Literacy Survey – Paper/Pencil

PARTICIPATION IN RESEARCH IS VOLUNTARY. You are free to decline to be in this study, or to withdraw from it at any point. Your decision as to whether or not you participate in this study will have no influence on your present or future status in your school or PTE program.

If you choose to participate, please answer the following questions by circling the letter or number which most accurately reflects your answer.

1. **Which content area do you teach in an Idaho high school? (Circle one)**
   A) Business Management & Marketing
   B) Engineering Technology Education
   C) Family & Consumer Sciences
   D) Skilled & Technical Sciences
   E) Other: _____
2. **Gender: (Circle one)**
   A) Male B) Female
3. **Please describe your high schools' student population by grades: (Circle one)**
   A) Grades 9-12 B) Grades 10-12 C) Other: _____
4. **Please describe your high schools' total student enrollment: (Circle one)**
   A) 1,280+ D) 319-160
   B) 1,279-640 E) 159-100
   C) 639-320 F) 99 & below
5. **How many years of <u>industry work</u> experience in your PTE content area do you have?**
   A) 1 to 3 years B) 4 to 10 years C) 10+ years D) Other: _____
6. **How many years of <u>teaching</u> experience in your PTE content area do you have?**
   A) 1 to 3 years B) 4 to 10 years C) 10+ years D) Other: _____
7. **What is the level of your current teaching certificate? (Circle one)**
   A) Limited Occupational Specialist
   B) Standard Occupational Specialist
   C) Standard Secondary Teaching Credential
   D) Provisional Certificate
   E) Other: _____

Circle the number which most closely reflects your answer:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
8. The curriculum should contain an orderly arrangement of subjects and represent the best of our cultural heritage.	**1**	**2**	**3**	**4**	**5**
9. Demonstration and recitation are essential components for learning.	**1**	**2**	**3**	**4**	**5**
10. There are essential skills all students must learn.	**1**	**2**	**3**	**4**	**5**
11. Students need and should have more supervision and discipline than they usually get.	**1**	**2**	**3**	**4**	**5**
12. Drill and factual knowledge are important components of any learning.	**1**	**2**	**3**	**4**	**5**
13. There are essential pieces of knowledge that all students should know.	**1**	**2**	**3**	**4**	**5**
14. The student should be a receiver of knowledge.	**1**	**2**	**3**	**4**	**5**
15. The teacher should be a strong authority figure in the classroom.	**1**	**2**	**3**	**4**	**5**
16. Students learning from other students is an important component of any learning environment.	**1**	**2**	**3**	**4**	**5**
17. Schools exist to foster the intellectual process.	**1**	**2**	**3**	**4**	**5**
18. Teaching should center around the inquiry method.	**1**	**2**	**3**	**4**	**5**

Continue to next page…

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
19. Teachers should be facilitators of learning.	**1**	**2**	**3**	**4**	**5**
20. Ideal teachers are constant questioners.	**1**	**2**	**3**	**4**	**5**
21. Right from the first grade, teachers must teach the student at his/her level and not at the level of the grade he/she is in.	**1**	**2**	**3**	**4**	**5**
22. Schools should be sources of new social ideas.	**1**	**2**	**3**	**4**	**5**
23. Schools exist to facilitate self-awareness.	**1**	**2**	**3**	**4**	**5**
24. No subject is more important than the personalities of the students.	**1**	**2**	**3**	**4**	**5**
25. Students should be allowed more freedom than they usually get in the execution of learning activities.	**1**	**2**	**3**	**4**	**5**
26. Schools exist to preserve and strengthen spiritual and social values.	**1**	**2**	**3**	**4**	**5**
27. Students should play an active part in program design and evaluation.	**1**	**2**	**3**	**4**	**5**
28. The curriculum should focus on social problems and issues.	**1**	**2**	**3**	**4**	**5**

Continue to next page…

(NOTE: Likert scale changes to Strongly Agree as #1 and Strongly Disagree as #7)

	Strongly Agree	Agree	Tend to Agree	Neutral	Tend to Disagree	Disagree	Strongly Disagree
29. A content area teacher is obliged to help students improve their reading ability.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
30. Technical vocabulary should be introduced to students in content classes before they meet those terms in a reading passage.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
31. The primary responsibility of a content teacher should be to impart subject matter knowledge.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
32. Few students can learn all they need to know about how to read in (their first) six years of schooling.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
33. The sole responsibility for teaching students how to study should lie with reading teachers.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
34. Knowing how to teach reading in content areas should be required for secondary teaching certification.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
35. Only English teachers should be responsible for teaching reading in secondary schools.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Continue to next page…

	Strongly Agree	Agree	Tend to Agree	Neutral	Tend to Disagree	Disagree	Strongly Disagree
36. A teacher who wants to improve students' interest in reading should show them that he or she likes to read.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
37. Content teachers should teach content and leave reading instruction to reading teachers.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
38. A content area teacher should be responsible for helping students think on an interpretive level as well as a literal level when they read.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
39. Content area teachers should feel a greater responsibility to the content they teach than to any reading instruction they may be able to provide.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
40. Content area teachers should help students learn to set purposes for reading.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
41. Every content area teacher should teach students how to read material in his or her content specialty.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
42. Reading instruction in secondary schools is a waste of time.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
43. Content area teachers should be familiar with theoretical concepts of the reading process.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Thank you for participating in this survey. Please turn the survey over and hand it to Angie Neal or one of the individuals identified as official survey assistants.

Appendix C

Idaho High School Literacy Survey – Qualtrics Online

PARTICIPATION IN RESEARCH IS VOLUNTARY. You are free to decline to be in this study, or to withdraw from it at any point. Your decision as to whether or not you participate in this study will have no influence on your present or future status in your school or PTE program.

If you choose to participate, please answer the following questions by clicking the button which most accurately reflects your answer.

Q2

Click below to indicate your consent to participate in this research study.

- I agree
- I do not agree

 If **I do not agree** Is **Selected**, Then Skip To **End of Survey Skip Logic**

Q16

Did you attend Idaho PTE Summer Conference in Boise, ID, on June 16-18, 2014?

- Yes
- No

Q17

 **Display This Question:**
If Did you attend Idaho PTE Summer Conference in Boise, ID, on June 16-18, 2014? Yes Is Selected Edit

Did you complete the Idaho High School Literacy survey while you were on site at conference?

If you filled out the survey at PTE conference, thank you very much. Please click the "x" in the red box in the upper right-hand corner of the browser. You do not need to complete the survey again.

- Yes
- No

Q3

Which content area do you teach in an Idaho high school?

- Business Management & Marketing
- Engineering Technology Education
- Family & Consumer Sciences
- Skilled & Technical Sciences
- Other:

Q4

Gender:

- Male
- Female

Q5

Please describe your high schools' student population:

- Grades 9-12
- Grades 10-12
- Other

Q6

Please describe your high schools' total student enrollment:

- 1,280+
- 1,279-640
- 639-320
- 319-160
- 159-100
- 99 & below

Q7

How many years of **industry work** experience in your PTE content area do you have?

- 1 to 3 years
- 4 to 10 years
- 10+ years
- Other:

Q8

How many years of **teaching** experience in your PTE content area do you have?

- 1 to 3 years
- 4 to 10 years
- 10+ years
- Other:

Q9

What is the level of your current teaching certificate?

- Limited Occupational Specialist
- Standard Occupational Specialist
- Standard Secondary Teaching Credential
- Provisional Certificate
- Other:

Q11

Click the button which most closely reflects your answer:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The curriculum should contain an orderly arrangement of subjects and represent the best of our cultural heritage.					

Q12

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Demonstration and recitation are essential components for learning.					

Q15

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
There are essential skills all students must learn.					

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q18 Students need and should have more supervision and discipline than they usually get.	●	●	●	●	●
Q19 Drill and factual knowledge are important components of any learning.	●	●	●	●	●
Q20 There are essential pieces of knowledge that all students should know.	●	●	●	●	●
Q21 The student should be a receiver of knowledge.	●	●	●	●	●
Q22 The teacher should be a strong authority figure in the classroom.	●	●	●	●	●

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q23 Students learning from other students is an important component of any learning environment.	●	●	●	●	●
Q24 Schools exist to foster the intellectual process.	●	●	●	●	●
Q25 Teaching should center around the inquiry method.	●	●	●	●	●
Q26 Teachers should be facilitators of learning.	●	●	●	●	●
Q27 Ideal teachers are constant questioners.	●	●	●	●	●
Q28 Right from the first grade, teachers must teacher the student at his/her level and not at the level of the grade he/she is in.	●	●	●	●	●
Q29	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Schools should be sources of new social ideas.	●	●	●	●	●

Q30

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Schools exist to facilitate self-awareness.	●	●	●	●	●

Q31

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
No subject is more important than the personalities of the students.	●	●	●	●	●

Q32

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Students should be allowed more freedom than they usually get in the execution of learning activities.	●	●	●	●	●

Q33

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Schools exist to preserve and strengthen spiritual and social values.	●	●	●	●	●

Q34	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Students should play an active part in program design and evaluation.	●	●	●	●	●

Q35	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The curriculum should focus on social problems and issues.	●	●	●	●	●

Q37

NOTE: Likert-type scale changes to Strongly Agree as #1 and Strongly Disagree as #7)

Click the button which most closely reflects your answer:

	Strongly Agree	Agree	Tend to Agree	Neutral	Tend to Disagree	Disagree	Strongly Disagree
A content area teacher is obliged to help students improve their reading ability.	●	●	●	●	●	●	●

Q38	Strongly Agree	Agree	Tend to Agree	Neutral	Tend to Disagree	Disagree	Strongly Disagree
Technical vocabulary should be introduced to students in content classes before they meet those terms in a reading passage.	●	●	●	●	●	●	●

	Strongly Agree	Agree	Tend to Agree	Neutral	Tend to Disagree	Disagree	Strongly Disagree
Q39 The primary responsibility of a content teacher should be to impart subject matter knowledge.	●	●	●	●	●	●	●
Q40 Few students can learn all they need to know about how to read in (their first) six years of schooling.	●	●	●	●	●	●	●
Q41 The sole responsibility for teaching students how to study should lie with reading teachers.	●	●	●	●	●	●	●
Q42 Knowing how to teach reading in content areas should be required for secondary teaching certification.	●	●	●	●	●	●	●
Q43 Only English teachers should be responsible for teaching reading in secondary schools.	●	●	●	●	●	●	●

	Strongly Agree	Agree	Tend to Agree	Neutral	Tend to Disagree	Disagree	Strongly Disagree
Q44 A teacher who wants to improve students' interest in reading should show them that he or she likes to read.	●	●	●	●	●	●	●
Q45 Content teachers should teach content and leave reading instruction to reading teachers.	●	●	●	●	●	●	●
Q46 A content area teacher should be responsible for helping students think on an interpretive level as well as a literal level when they read.	●	●	●	●	●	●	●
Q47 Content area teachers should feel a greater responsibility to the content they teach than to any reading instruction they may be able to provide.	●	●	●	●	●	●	●
Q48 Content area teachers should help students learn to set purposes for reading.	●	●	●	●	●	●	●

Q49

	Strongly Agree	Agree	Tend to Agree	Neutral	Tend to Disagree	Disagree	Strongly Disagree
Every content area teacher should teach students how to read material in his or her content specialty.	●	●	●	●	●	●	●

Q50

	Strongly Agree	Agree	Tend to Agree	Neutral	Tend to Disagree	Disagree	Strongly Disagree
Reading instruction in secondary schools is a waste of time.	●	●	●	●	●	●	●

Q52

	Strongly Agree	Agree	Tend to Agree	Neutral	Tend to Disagree	Disagree	Strongly Disagree
Content area teachers should be familiar with theoretical concepts of the reading process.	●	●	●	●	●	●	●

Q53

Thank you for your participation.

Please click the >> button in the lower right-hand corner of the screen to submit your survey.

If you have questions about the survey, please contact Angie Neal at aneal@nnu.edu.

Appendix D

Request to Email Electronic Survey

Please email invitation for PTE teachers to complete survey - Angie Neal doctoral research

9/8/14

Angie Neal <aneal@nnu.edu>

to Theresa, Janel, shauna.williams, stephanie.roos

Dear Theresa, Janel, Shauna, and Stephanie:

I am following up on the survey I administered during IDPTE Summer Conference, 2014. I was able to collect completed surveys from 234 CTE teachers from your four program areas.

My dissertation committee asked me to make the survey available to professional-technical education teachers who were not able to attend conference and/or did not complete the survey on site during conference.

Would you be so kind as to copy the information below, copy and paste it into a new email, and send it out to your email distribution list of PTE high school teachers in yoru content area? I'm not asking you to differentiate between who did or did not attend conference. The message asks those who attended not to fill out the survey again. **Thank you so very much** for your assistance in my doctoral research. I will be sure to share the results with you regarding our PTE teachers' attitudes and beliefs toward teaching literacy (reading) in their PTE content areas.

Lastly, please cc: me on the email to your teachers (neal.angie@westada.org). That way I have it for my dissertation documentation. And, will you please email me to let me know the total number of high school teachers in your PTE content area? I appreciate you!! Angie

Please copy and paste the following message to send to your teachers:

Thank you to those of you who filled out the Idaho High School Literacy Survey during Summer Conference. For those of you who were not able to attend conference, and/or attended but did not fill out the survey during conference, please take a few minutes to do so. The survey is available online at:

http://nnu.co1.qualtrics.com/SE/?SID=SV_3PGOGxffO3ph2TP

If you attended the conference and filled out the paper-pencil survey during our group meeting, thank you for your input, please do not fill out the online questionnaire. The NNU research committee has asked for input from those who did not attend and/or attended but did not complete the survey. **It is important for your voice to be heard regarding your attitudes and beliefs toward teaching literacy in your PTE content area.**

Doctoral candidate, Angie Neal, needs to collect completed online surveys by the end of the

week. Thank you for taking 5-10 minutes to complete the survey. Angie and I appreciate your participation. If you have questions about the survey, please contact Angie directly at aneal@nnu.edu.

Thanks again Theresa, Janel, Shauna, and Stephanie. If you have any questions about this request, please call me on my personal cell at 631-7130. Angie

P.S. Hope the meeting at the Capitol is going well.

Appendix E

Request to use EBQ Survey

Copy of email correspondence: Request for permission to use EBQ in doctoral research
11/14/13

Angie Neal aneal@nnu.edu
to davids

Dr. David L. Silvernail
CEPARE
University of Southern Maine
McLellan House
140 School Street
Gorham, ME 04038

Dear Dr. Silvernail:

While conducting research as part of my doctoral studies at Northwest Nazarene University in Nampa, Idaho, I discovered your 1992 "Educational Beliefs Questionnaire" published in The High School Journal. I am seeking your permission to use the EBQ in the research I plan to conduct as part of the doctoral program. I plan to examine the educational beliefs of Idaho Career-Technical Education (CTE) teachers who teach business education, family consumer sciences, and skills and technical sciences. The target audience of the study will be approximately 350 teachers who will complete the EBQ and another instrument to measure their attitudes toward integration of common core literacy standards into their CTE program areas.

Academic content area instructors have embraced the Common Core State Standards (CCSS). However, CTE teachers have yet to fully embrace the notion of integrating CCSS into their content areas. My hope is for the results of my research to enable me to provide meaningful professional development opportunities to assist teachers in successfully integrating literacy in technical subjects CCSS into their CTE classrooms.

With your permission to us the EBQ, I will survey Idaho CTE teachers during the June, 2014, Idaho CTE Summer Conference.

Thank you for your consideration of my request.

Sincerely,

Angie Neal
Educational Leadership Doctoral Candidate
Northwest Nazarene University
phone: 208-631-7130
email: aneal@nnu.edu

Appendix F

Permission to use EBQ

David Silvernail davids@usm.maine.edu 11/15/13

to me

Yes, Angie, you have my permission to use the EBQ. If you need something more formal for your committee, just send me something to sign and I'll send it back to you.

Good luck on the research. It sounds interesting. I'd be interested in a summary of your findings once you have completed the study.

David

>>> Angie Neal <aneal@nnu.edu> 11/14/2013 7:18 PM >>>

Appendix G

Request to reprint EBQ Tables

To: Dr. Cindy Adams, ciadams@hoover.k12.al.us
From: Angie Neal, aneal@nnu.edu
Date: 1/2/2014, 11:00 a.m.
Subject: Request to reproduce EBQ and Vaughan's Scale to Measure Attitudes tables in dissertation

Dear Dr. Adams:

While conducting research as part of my doctoral studies at Northwest Nazarene University in Nampa, Idaho, I discovered your dissertation, *Demands of dualism: Literacy and content area instructional beliefs in Alabama high schools*. My research study focuses on integration of core academic content into career technical educators' classrooms. As such, I am interested in using your dissertation as a guiding model for my research.

Like you, I received permission from Dr. David Silvernail to use his EBQ survey as part of my study.

I am writing to you to request your permission to reproduce two tables from your dissertation. Of particular interest are Table 1: The Three Philosophical Factors and Item Structure of the EBQ and Table 2: Item Structure of Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms. My research includes the examination of educational beliefs of Idaho Career-Technical Education (CTE) teachers who teach business education, family consumer sciences, and skills and technical sciences. The target audience of the study will be approximately 350 teachers who will complete the EBQ and Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms to measure their attitudes toward integration of common core literacy standards into their CTE program areas.

Academic content area instructors have embraced the Common Core State Standards (CCSS). However, CTE teachers have yet to fully embrace the notion of integrating CCSS into their content areas. My hope is for the results of my research to enable me to provide meaningful professional development opportunities to assist teachers in successfully integrating literacy in technical subjects CCSS into their CTE classrooms.

Please reply and let me know if I may reproduce your dissertation Tables 1 and 2 in my research document.

Thank you for your consideration of my request.

Sincerely,

Angie Neal, Doctoral Candidate
Northwest Nazarene University

Appendix H

Permission to reprint EBQ Tables

To: Angie Neal, aneal@nnu.edu
From: Cindy Adams, ciadams@hoover.k12.al.us
Date: 1/2/2014, 12:27 p.m.
Subject: Request to reproduce EBQ and Vaughan's Scale to Measure Attitudes tables in dissertation

Angie,

You are most welcome to use two of my tables as part of your research for your dissertation. As the chief academic officer for a school district, I would be most interested in the results of your study. If possible, please send me a link to your dissertation when it is published. I wish you the best experience as your complete your doctoral journey.

Cindy

Cindy S. Adams, Ph.D.
Chief Academic Officer
Hoover City Schools
2810 Metropolitan Way
Hoover, AL 35243
ciadams@hoover.k12.al.us
office: (205) 439-1055
cell: (205)639-2190

Appendix I

Confidentiality Agreement

Title of Research Project: A Quantitative Study Exploring Literacy and Career Technical Education Instructional Beliefs in Idaho High Schools.

Local Principal Investigator:

As an assistant to the research team, I understand that I may have access to confidential information about study sites and participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agree to the following:

- I understand that names and any other identifying information about study sites and participants are completely confidential.

- I agree not to divulge, publish, or otherwise make known to unauthorized persons or to the public any information obtained in the course of this research project that could identify the persons who participated in the study.

- I understand that all information about study sites or participants obtained or accessed by me in the course of my work is confidential. I agree not to divulge or otherwise make known to unauthorized persons any of this information, unless specifically authorized to do so by approved protocol or by the local principal investigator acting in response to applicable law or court order, or public health or clinical need.

- I understand that I am not to read information about study sites or participants, or any other confidential documents, nor ask questions of study participants for my own personal information but only to the extent and for the purpose of performing my assigned duties on this research project.

- I agree to notify the local principal investigator immediately should I become aware of an actual reach of confidentiality or a situation which could potentially result in a breach, whether this be on my part or on the part of another person.

_____	_____	_____
Signature	Date	Printed Name
Angie Neal		
_____	6/17-18/2014	_____
Signature	Date	Printed Name

Appendix J

Request to Access PTE Participants

From: Angie Neal [mailto:aneal@nnu.edu]
Sent: Monday, January 27, 2014 8:27 PM
To: Dona Orr; Theresa Golis; Irene Vogel; Janel Kerr
Subject: Approval letter needed to conduct research at summer conference

Dear Irene, Theresa, Dona, and Janel:

I am working on submitting my documentation to be able to survey your teachers during your discipline-specific program meetings at IDPTE Summer Conference, June 16-18, 2014..

In order for the Human Participant Review Board to grant approval, I need to have signed letters from you stating you give your permission for me to administer the survey during your program meeting. As part of one of my assignments, I was to develop a letter to provide for your convenience. At the time, the only division letterhead I could get off of the web was for Ag. Science. I am requesting you copy and paste the letter onto current letterhead, include you name and title, and return a signed copy to me. I can accept it electronically if that is most convenient for you. Note: I used Dona's name on it because I spoke with her first.

I will be happy to provide a rough draft of my proposal, but will give you the reader's digest version of my study.....

The purpose of this quantitative study is to examine the differences in career-technical education (CTE) teachers' educational beliefs and their attitudes toward teaching reading in their business education, engineering technology education, family and consumer sciences, and skilled and technical sciences classrooms in Idaho high schools when both CTE content area and teacher certification levels were considered. The importance of this study stems from teachers working with students who lack the skills necessary to meet the demands of reading in high school, in preparing to read in college, and continue on to workplace literacy needs.

A quantitative research design and scope will be utilized to answer the research questions described in this study. The researcher first utilizes descriptive statistics to summarize the characteristics of the data set, followed by inferential statistics to draw conclusions about the data (Tanner, 2012). Creswell (2008) suggests quantitative analysis is most appropriate as it allows the researcher to evaluate data into parts to address the research questions.

Data will be collected via a likert survey which will be completed by business education, engineering technology education, family and consumer sciences, and skilled and technical sciences high school teachers during the Idaho Division of Professional-Technical Educators' Annual Summer Conference in Boise, Idaho, on June 16-18, 2014. Teachers in attendance at the conference will have the opportunity to voluntarily complete the survey during their content area division meetings. The paper-pencil survey combines Silvernail's Educational Beliefs Questionnaire (EBQ) and Vaughan's Scale to Measure Attitudes toward Teaching Reading in Content Classrooms. The 43-item Idaho High School Literacy Survey is composed of closed-ended questions that can easily be quantified. One open-ended question will be used

at the end of the survey. The researcher contacted Dr. Silvernail by email and obtained permission to use his 21 belief statement EBQ. Teachers rate their level of agreement on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). The purpose of the EBQ is to examine teachers' educational beliefs and asses their educational orientations (Silvernail, 1992). The EBQ has been validated in recent research such as Adams (2011), Faull (2008), and Hathaway (2009). The second component of the survey includes the Scale to Measure Attitudes toward Teaching Reading in the Content Classrooms, developed by Joseph Vaughan in 1977, it assesses teacher attitudes toward teaching literacy in secondary classrooms. The 15-items ask questions using a 7-point Likert scale ranging from 1 (strongly agree) to 7 (strongly disagree). Vaughan Although deceased, Vaughan granted permission for researchers to reproduce and use the Scale to Measure Attitudes toward Teaching Reading in the Content Classrooms in a published peer-reviewed journal article (Vaughan, 1977). Information collected on the survey will examine the differences in career-technical education (CTE) teachers' educational beliefs and their attitudes toward teaching reading in their business education, family and consumer sciences, and skilled and technical sciences classrooms in Idaho high school classes.

The bottom line is this...I am interested in finding out the percentage of teachers who fall into each of three educational philosophies (Traditional, Progressivism, Romanticism). I will also collect information on their attitudes toward teaching literacy/reading in their content area. I will also take into account their current level of teaching credential. My hope is to understand where teachers are now with regard to educational philosophy, attitudes toward reading, and teacher certification (occupational or standard teaching) in order to develop meaningful professional development opportunities to assist teachers in preparing students with the reading/literacy skills necessary to assist them in being college and career ready when they leave high school.

If you have any questions about the approval letter, please feel free to call me on my cell phone at 631-7130.

Thanks so much for your assistance in my doctoral research-- I appreciate you.

Sincerely,

Angie Neal

Appendix K

Permission to Access PTE Participants

IDAHO
Division of
Professional-Technical Education
PTE
Agriculture and Natural Resources

February 3, 2014

Northwest Nazarene University
Attention :HRRC Committee
Helstrom Business Center 1st
Floor 623 S. University
Boulevard Nampa, ID 83686

RE: Research Proposal Site Access for Mrs. Angela S. Neal

Dear HRRC Members:

This letter is to inform the HRRC that the Idaho Division of Professional-Technical Education has reviewed the proposed dissertation research plan including subjects, assessment procedures,proposed data and collection procedures , data analysis, and purpose of the study. Mrs. Neal haspermission to conduct her research study at the Idaho Division of Professional-Technical Educators' Annual Summer Conference, which will be held June 15-18, 2014.

Respectfully,

Dona Orr
Program Manager, Business and Marketing Education
Idaho Division of Professional-Technical Education
Dona.Orr@PTE.Idaho.gov

Appendix K (Continued)

Permission to Access PTE Participants

IDAHO
Division of
Professional-Technical Education
PTE
Agriculture and Natural Resources

January 27, 2014

Northwest Nazarene University
Attention: HRRC Committee
Helstrom Business Center 1st Floor
623 S. University Boulevard
Nampa, ID 83686

RE: Research Proposal Site Access for Mrs. Angela S. Neal

Dear HRRC Members:

This letter is to inform the HRRC that the Idaho Division of Professional-Technical Education has reviewed the proposed dissertation research plan including subjects, assessment procedures, proposed data and collection procedures, data analysis, and purpose of the study. Mrs. Neal has permission to conduct her research study at the Idaho Division of Professional-Technical Educators' Annual Conference. The authorization dates for this research study are June 15-18, 2014.

Respectfully,

Janel M. Kerr, Ph.D.
Program Manager, Engineering and Technology Education
Idaho Division of Professional-Technical Education
janel.kerr@pte.idaho.gov

Appendix K (Continued)

Permission to Access PTE Participants

IDAHO
Division of
Professional-Technical Education

PTE

Family and Consumer

Real skills. Real careers. Real

January 28, 2014

Northwest Nazarene
University Attention:
HRRC Committee
Helstrom Business
Center 1st Floor 623 S.
University Boulevard
Nampa, ID 83686

RE: Research Proposal Site Access for Mrs. Angela

S. Neal Dear HRRC Members:

This letter is to inform the HRRC that the Idaho Division of Professional-Technical Education has reviewed the proposed dissertation research plan including subjects, assessment procedures, proposed data and collection procedures, data analysis, and purpose of the study. Mrs. Neal has permission to conduct her research study at the Idaho Division of Professional-Technical Educators' Annual Conference. The authorization dates for this research study are June 15-18, 2014.

Respectfully,

Theresa Golis, Program
Manager
Family and Consumer Sciences Education

650 West State Street | P.O. Box 83720 | Boise ID 83720-0095 | p 208.334.3216 | f 208.334.2365
|pte.idaho.gov

Appendix K (Continued)

Permission to Access PTE Participants

IDAHO
Division of
Professional-Technical Education
PTE
Skilled and Technical Sciences

January 28, 2014

Northwest Nazarene University
Attention: HRRC Committee
Helstrom Business Center 1st Floor
623 S. University Boulevard
Nampa, ID 83686

RE: Research Proposal Site Access for Mrs. Angela S. Neal

Dear HRRC Members:

This letter is to inform the HRRC that the Idaho Division of Professional-Technical Education has reviewed the proposed dissertation research plan including subjects, assessment procedures, proposed data and collection procedures, data analysis, and purpose of the study. Mrs. Neal has permission to conduct her research study at the Idaho Division of Professional-Technical Educators' Annual Conference. The authorization dates for this research study are June 15-18, 2014.

Respectfully,

Irene Vogel, PhD; Program Manager
Skilled and Technical Sciences
Idaho Division of Professional-Technical Education
ivogel@pte.idaho.gov

Appendix L

Verbatim Instructions/Informed Consent

Angie Neal, Ed.S., a doctoral student in Educational Leadership at Northwest Nazarene University is conducting a research study related to teacher attitudes and beliefs toward teaching reading in their content area. With this study, we hope to improve professional development opportunities for Professional-Technical Education (PTE) teachers with regard to teaching reading (Common Core Standards Technical Subjects Literacy). We appreciate your involvement in helping us investigate how to better serve and meet the needs of PTE teachers. You are being asked to participate in this study because you are a current high school PTE teacher.

If you agree to participate in the study, you will be asked to read the informed consent information at the top of the survey. Volunteering to participate in the study demonstrates consent. When you complete the paper/pencil survey, please hand it to one of our postsecondary volunteers or place it in the box provided.

RISKS/DISCOMFORTS
Some of the survey questions may make you uncomfortable or upset, but you are free to decline to answer any questions you do not wish to answer or to stop participation at any time with no consequences.

Confidentiality: Participation in research may involve a loss of privacy; however, your records will be handled as confidentially as possible. No individual identities will be used in any reports or publications that may result from this study. In compliance with the Federalwide Assurance Code, data from this study will be kept for three years, after which all data from the study will be destroyed (45 CFR 46.117).

BENEFITS
There will be no direct benefit to you from participating in this study. However, the information you provide may help educators to better understand PTE teacher attitudes and beliefs toward teaching reading in their content area.

PAYMENTS
There are no payments for participating in this study.

QUESTIONS
If you have questions or concerns about participation in this study, you should first talk with the researcher. Angie Neal can be contacted via email at aneal@nnu.edu, via telephone at (208) 631-7130. If for some reason you do not wish to do this, you may contact Dr. Heidi Curtis, Doctoral Committee Chair at Northwest Nazarene University, via email at hlcurtis@nnu.edu, via telephone at (208) 467-8250, or by writing: 623 University Drive, Nampa, Idaho, 83686.

Appendix M

Debrief Statement

Thank you for participating in this study. As you know, being a CTE high school teacher is a challenging career. The goal of this study is to determine if CTE instructors believe they should teach reading in their CTE content area. Hopefully, this study can inform professional development efforts to assist CTE teachers to integrate literacy or reading instruction into their CTE content area classrooms in Idaho high schools.

If you have any questions or concerns, Angie Neal can be contacted by phone at (208) 631-7130 or e-mail at aneal@nnu.edu.

Thank you for your participation.

Angie Neal
HRRC Application

Appendix N

HRRC Approval

HRRC Protocol Status Notification

3/20/14

Ronald Strohmeyer <rwstrohmeyer@nnu.edu>

to me, Heidi, HRRC

Dear Angela,

The HRRC has reviewed your protocol: A Quantitative Study Exploring Literacy and Career Technical Education Instructional Beliefs in Idaho High Schools. You received a "Full Approval". Congratulations, you may begin your research. If you have any questions, let me know.

Ronald Strohmeyer
HRRC Member

5/21/14

Angie Neal <aneal@nnu.edu>

Dear Dr. Strohmeyer:

Attached is an amended HRRC application for my research "A Quantitative Study Exploring Literacy and Career Technical Education Instructional Beliefs in Idaho High Schools". During my proposal defense, my committee recommended I send a follow up electronic survey to non-conference attendees. Please look for the green highlighted sections which shows the text that has been added to the original approved text.

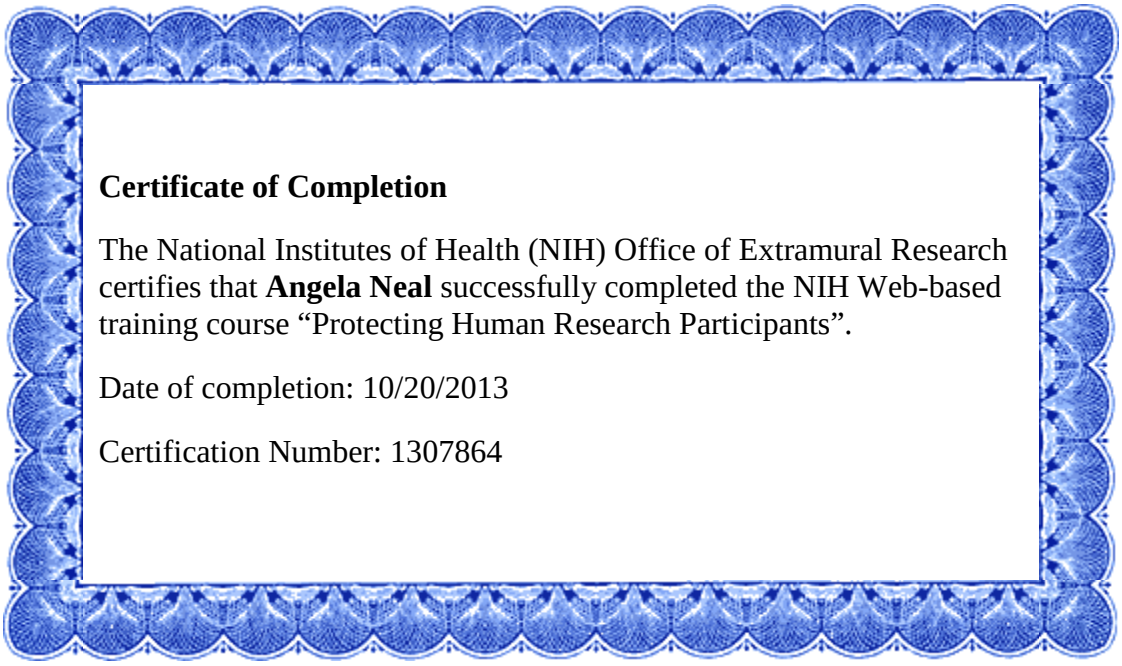
Please let me know if you have any questions. Thank you for your consideration of my amended application.

Sincerely,

Angie Neal
Attachments area
Preview attachment Neal_Angela_05212014_Human_Research_Review_Committee__Non-Exempt_Studies_Form.doc
to Ronald, Heidi, HRRC

Appendix O

Human Research Review Committee Approval



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Angela Neal** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 10/20/2013

Certification Number: 1307864

Appendix P

HRRC Amendment Approval

5/22/14

Ronald Strohmeyer <rwstrohmeyer@nnu.edu>

to me, Heidi, HRRC

Hi Angie,
The updates look good. I have no issues with them and these changes are approved. Hope your research is going well.

Sandy,
please add this revised/amended protocol to Angie's file. Thanks

Click here to Reply, Reply to all, or Forward
Using 0.49 GB
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Last account activity: 54 minutes ago
Details

Appendix Q

Table 15

Idaho High School Literacy Survey – EBQ by Item

	Educational Beliefs Questionnaire (EBQ)	(n)	Mean	Median	Mode
1	Curriculum should contain an orderly arrangement of subjects that represent cultural heritage.	285	3.84	4.0	4
2	Demonstration and recitation are essential components of learning.	289	4.08	4.0	4
3	There are essential skills all students must learn.	290	4.64	5.0	5
4	Student need and should have more supervision and discipline than they usually get.	288	3.54	4.0	4
5	Drill and factual knowledge are important components of any learning.	289	3.62	4.0	4
6	There are essential pieces of knowledge that all students should know.	290	4.47	5.0	5
7	The student should be a receiver of knowledge.	285	3.66	4.0	4
8	The teacher should be a strong authority figure in the classroom.	289	3.64	4.0	4
9	Students learning from other students is an important component of any learning environment.	289	4.50	5.0	5
10	Schools exist to foster the intellectual process.	285	4.06	4.0	4
11	Teaching should center around the inquiry method.	288	3.69	4.0	4
12	Teachers should be facilitators of learning.	275	4.5	5.0	5
13	Ideal teachers are constant questioners.	290	4.18	4.0	4
14	Teachers must teach the student at his/her level and not at the grade level the student is in.	289	3.36	3.0	4
15	Schools should be sources of new social ideas.	285	3.13	3.0	3
16	Schools exist to facilitate self-awareness.	290	3.47	4.0	4
17	No subject is more important than the personalities of the students.	286	2.89	3.0	3
18	Students should be allowed more freedom than they typically do during learning activities.	285	3.16	3.0	3
19	Schools exist to preserve and strengthen spiritual and social values.	285	2.92	3.0	3
20	Students should play an active part in program design and evaluation.	290	3.47	4.0	4
21	The curriculum should focus on social problems and issues.	289	2.96	3.0	3

Appendix R

Table 17

Idaho High School Literacy Survey EBQ Frequency Responses

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Curriculum should contain an orderly arrangement of subjects that represent cultural heritage.	2	7	75	151	50
2. Demonstration and recitation are essential components of learning.	1	8	38	162	80
3. There are essential skills all students must learn.	2	0	3	90	195
4. Students need and should have more supervision and discipline than they usually get.	1	33	101	115	38
5. Drill and factual knowledge are important components of any learning.	3	29	78	145	34
6. There are essential pieces of knowledge that all students should know.	1	1	7	134	147
7. The student should be a receiver of knowledge.	5	34	68	123	55
8. The teacher should be a strong authority figure in the classroom.	4	36	68	134	47
9. Students learning from other students is an important component of any learning environment.	1	0	9	122	157
10. Schools exist to foster the intellectual process.	4	8	49	141	86
11. Teaching should center around the inquiry method.	2	14	98	130	44
12. Teachers should be facilitators of learning.	1	1	7	116	150
13. Ideal teachers are constant questioners.	1	7	35	142	105
14. Teachers must teach the student at his/her level and not at the grade level the student is in.	12	54	82	101	40
15. Schools should be sources of new social ideas.	15	44	131	78	17
16. Schools exist to facilitate self-awareness.	5	40	86	132	27
17. No subject is more important than the personalities of the students.	14	83	123	53	13
18. Students should be allowed more freedom than they typically get during learning activities.	9	63	108	84	21
19. Schools exist to preserve and strengthen spiritual and social values.	21	70	117	65	12
20. Students should play an active part in program design and evaluation.	5	34	93	135	23
21. The curriculum should focus on social problems and issues.	16	75	111	78	9

Appendix S

Table 18

Idaho High School Literacy Survey EBQ Percentage Responses

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Curriculum should contain an orderly arrangement of subjects that represent cultural heritage.	.7	2.4	25.8	51.9	17.2
2. Demonstration and recitation are essential components of learning.	.3	2.8	13.1	56.1	27.7
3. There are essential skills all students must learn.	.7	0	1.0	30.9	67.0
4. Students need and should have more supervision and discipline than they usually get.	.3	11.3	34.7	39.5	13.1
5. Drill and factual knowledge are important components of any learning.	1.0	10.0	26.8	49.8	11.7
6. There are essential pieces of knowledge that all students should know.	.3	.3	2.4	46.0	50.5
7. The student should be a receiver of knowledge.	1.7	11.7	23.4	42.3	18.9
8. The teacher should be a strong authority figure in the classroom.	1.4	12.4	23.4	46.0	16.2
9. Students learning from other students is an important component of any learning environment.	.3	0	3.1	41.9	54
10. Schools exist to foster the intellectual process.	.3	2.7	16.8	48.5	29.6
11. Teaching should center around the inquiry method.	.7	4.8	33.7	44.7	15.4
12. Teachers should be facilitators of learning.	.3	.3	2.4	39.9	51.5
13. Ideal teachers are constant questioners.	.3	2.4	12.0	48.8	36.1
14. Teachers must teach the student at his/her level and not at the grade level the student is in.	4.1	18.6	28.2	34.7	13.7
15. Schools should be sources of new social ideas.	5.2	15.1	45.0	26.8	5.8
16. Schools exist to facilitate self-awareness.	1.7	13.7	29.6	45.4	9.3
17. No subject is more important than the personalities of the students.	4.8	28.5	42.3	18.2	4.5
18. Students should be allowed more freedom than they typically get during learning activities.	3.1	21.6	37.1	28.9	7.2
19. Schools exist to preserve and strengthen spiritual and social values.	7.2	24.1	40.2	22.3	4.1
20. Students should play an active part in program design and evaluation.	1.7	11.7	32.0	46.4	7.9
21. The curriculum should focus on social problems and issues.	5.5	25.8	38.1	26.8	3.1

Appendix T

Table 24

Vaughan's Scale Descriptive Statistics

		(n)	Mean	Median	Mode	SD
1	A content area teacher is obliged to help students improve their reading ability.	285	5.46	6	6	1.200
2	Technical vocabulary should be introduced to students in content classes before they meet those terms in a reading passage.	289	5.33	5	3	1.274
3	The primary responsibility of a content teacher should be to impart subject matter knowledge.	290	2.83	3	3	1.274
4	Few students can learn all they need to know about how to read in their first six years of schooling.	289	4.36	5	5	1.640
5	The sole responsibility for teaching students how to study should lie with reading teachers.	284	5.41	6	5	1.257
6	Knowing how to teach reading in content areas should be required for secondary teaching certification.	290	4.34	4	5	1.554
7	Only English teachers should be responsible for teaching reading in secondary schools.	290	5.49	6	5	1.240
8	A teacher who wants to improve students' interest in reading should show the student that he or she likes to read.	287	5.44	5	5	1.082
9	Content teachers should teach content and leave reading instruction to reading teachers.	288	5.17	5	5	1.389
10	A content area teacher should be responsible for helping students think on an interpretive level as well as a literal level when they read.	288	5.51	5	5	1.043
11	Content area teachers should feel a greater responsibility to the content they teach than to any reading instruction they make be able to provide.	284	3.46	3	3	1.382
12	Content area teachers should help	287	5.26	5	5	1.046

	students set purposes for reading.					
13	Every content area teacher should teach students how to read material in his or her content specialty.	285	5.62	6	5	1.131
14	Reading instruction in secondary schools is a waste of time.	285	6.0	6	4	1.210
15	Content area teachers should be familiar with theoretical concepts of the reading process.	286	4.95	5	5	1.224

Appendix U

Table 34

Summary PCA with Factor Loadings for EBQ

			CTE Content Area			
Educational Philosophy	EBQ Item	Belief	Business Education	Engineering Technology Education	Family and Consumer Sciences	Skilled and Technical Sciences
Traditionalist	1*	Curriculum should contain an orderly arrangement of subjects that represent cultural heritage.	.349	.517	.390	**.528**
	2*	Demonstration and recitation are essential components of learning.	**.726**	.484	.602	.438
	3	There are essential skills all students must learn.	**.561**		.541	
	4	Student need and should have more supervision and discipline than they usually get.	.601	.625		**.716**
	5*	Drill and factual knowledge are important components of any learning.	.631	.710	.581	**.716**
	6	There are essential pieces of knowledge that all students should know.	**.484**		.378	
	7*	The student should be a receiver of knowledge.	.410	**.755**	.481	.549
	8*	The teacher should be a strong authority figure in	.640	**.764**	.561	.721

		the classroom.				
Progressivist	9*	Students learning from other students is an important component of any learning environment.	.323	.377	.446	**.656**
	10*	Schools exist to foster the intellectual process.	.516	.666	.539	.518
	11*	Teaching should center around the inquiry method.	.686	**.674**	.515	.363
	12*	Teachers should be facilitators of learning.	.625	.610	**.769**	.579
	13*	Ideal teachers are constant questioners.	.604	.583	**.641**	.586
	14	Teachers must teach the student at his/her level and not at the grade level the student is in.			**.504**	
Romanticist	15*	Schools should be sources of new social ideas.	.536	.708	**.724**	.611
	16*	Schools exist to facilitate self-awareness.	.539	.559	.684	**.788**
	17*	No subject is more important than the personalities of the students.	.612	**.809**	.670	.748
	18	Students should be allowed more freedom than they typically do during learning activities.	.544	.610	**.717**	
	19*	Schools exist to preserve and strengthen spiritual and social values.	**.736**	.693	.339	.585
	20*	Students should play an active part	.474	**.638**	.534	.574

	in program design and evaluation.				
21	The curriculum should focus on social problems and issues.	.726		**.798**	.786
Total percentage of all variance explained by these factors		39.1%	44.4%	39.7%	47.6%

Note. EBQ items shown with asterisk (*) indicate shared factor loadings across the four CTE content area teacher clustered beliefs.