The Identification and Prioritization of the Professional Development Needs for Teachers of Career, Technical, and Agricultural subjects within Georgia Metropolitan Area School Systems

A Dissertation submitted
to the Graduate School
Valdosta State University

in partial fulfillment of requirements
for the degree of

DOCTOR OF EDUCATION

In the Department of Adult and Career Education
of the James L. and Dorothy H. Dewar
College of Education and Human Services

July 2018

Charlie Edward McAdoo, II

MED, University of West Georgia, 2012
BA, Clark Atlanta University, 2000

This dissertation, "The Identification and Prioritization of the Professional Development Needs for Teachers of Career, Technical, and Agricultural subjects within Georgia Metropolitan Area School Systems", by Charlie Edward McAdoo, II, is approved by:

Dissertation Committee Chair

Reynaldo L. Martinez, Jr., Ph.D.
Professor of Adult and Career Education

Dissertation Research Member

James G. Archibald, Ph.D.
Associate Professor of Curriculum, Leadership, and Technology

Committee Members

Kenneth D. Ott, Ed.D.
Professor of Adult and Career Education

James Martinez, Ph.D.
Associate Professor of Middle, Secondary, Reading, and Deaf Education

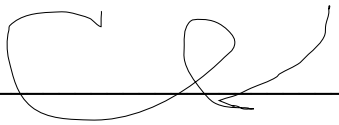
Dean of the Graduate School

James T. LaPlant, Ph.D.
Professor of Political Science and Assistant Vice President for Research and Dean of the Graduate School

FAIR USE

DUPLICATION

I authorize the Head of the Interlibrary Loan or the Head of Archives at the Odum Library at Valdosta State University to arrange for duplication of this dissertation for educational or scholarly purposes when so requested by a library user. The duplication shall be at the user's expense.

Signature 

I refuse permission for the dissertation to be duplicated in whole or in part.

Signature _____

ABSTRACT

The purpose of this research study was to identify and prioritize the professional development needs for teachers of CTAE subjects within metropolitan Atlanta school systems. The methodology was primarily relational with descriptive components that relied on quantitative data. The administered survey called for participants to self-report demographic groups (i.e. Experience Level, School Type, and School Population). Secondly, participants completed online surveys yielding data that identified professional development needs relative to demographic variables. A modified Borich (1980) Needs Assessment Model was used to identify the perceived importance and perceived competency of 20 competencies prescribed by the Georgia Teacher Assessment of Performance Standards (TAPS). Once analyzed, the researcher identified and described professional development needs relative to demographic variables.

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGEMENTS

I thank God for providing me with the curiosity, fortitude, and capacity to complete this work. My wife, Billynda, has provided unwavering support. She has seen me at my best and during my most challenging times. She is truly my better half and the rock of my life. Words cannot express how much I appreciate her presence throughout this dissertation journey. I would also like to acknowledge and thank my two sons, Charlie III and Billy, for encouraging me, providing perspective, and allowing me the time and space needed to complete my dissertation.

I am grateful to Dr. Reynoldo Martinez for freely sharing his knowledge, guidance, and wisdom throughout my dissertation process. I would also like to thank my dissertation committee for their invaluable input. Dr. James Archibald, thank your insight and sharing your knowledge with me regarding academic research. Dr. James Martinez, thank you for providing feedback throughout my process. Your encouraging emails were always timely and helped me push on through. I would also like to thank Dr. Kenneth Ott for his support and willingness to help in any way requested. The completion of my dissertation would not have been possible without the help of this committee of exceptional academicians.

I would like to acknowledge my parents, Rev. Dr. and Mrs. C.E. McAdoo, siblings, Leron (Stacey) McAdoo and Madra (Jonathan) Harden, and my in-laws, Mr. and Mrs. Billy Booth, Phylinthia Givens, and Telisa (Roosevelt) Hadley who have all stood steadfast in my corner, always encouraging me to stay the course. I also would like to thank our family's next generation of scholars, Blake Givens, Telia Hadley, Norel McAdoo, Jamee McAdoo, Uel Harden, and Vlana Harden for their help in my process. I pray that I have set an example for them of how to balance life and academic pursuits.

Lastly, I would like to thank all of the teachers, administrators, and colleagues that have assisted and encouraged me along the way. I know that my accomplishments are not my own. To God be the Glory!

Chapter I

INTRODUCTION

Teachers of Career, Technical, and Agricultural Education (CTAE) subjects are in need of professional development that enables them to provide quality and rigorous instruction to all students. Historically, significant emphasis has been placed in state mandated content areas, measuring knowledge and skills learned throughout the school year. This phenomenon is largely due to the requirements set forth by the Every Student Succeeds Act (ESSA)(United States Department of Education, 2015). ESSA legislation mandates that states receiving federal subsidies close the achievement gap through the use of accountability and high standards (United States Department of Education, 2015). Although students are exposed to a plethora of content as they matriculated, academic achievements are measured on performance in the areas of mathematics, social studies, science, and language arts (Hall, 2015). Student scores on state selected assessment instruments determine the level of student achievement and school success. Individual states have the autonomy to select the assessment instruments that are used to determine school/districts level of academic achievement. The Georgia Department of Education chose to have a comprehensive approach to student achievement by measuring overall school performance through the College and Career Readiness Performance Index (CCRPI) (Georgia Department of Education [GDOE], 2015).

States demonstrate varied approaches to the professional development needs of CTAE teachers. With the submission of each state's application for funding through the

Office of Career, Technical, and Adult Education (OCTAE), plans were required for how grant funds were to be used (U.S. Department of Education, 2002b). According to the Carl D. Perkins Career and Technical Education Act of 2006 (2006), Career and Technical Education (CTE) programs were to emphasize professional development that promoted rigorous standards, increased teacher licensure and certification, promoted industry orientation, promoted strong content knowledge, ensured accommodations for special populations, and adhered to mandates and legislation. While these elements are addressed on the federal level, there are also needs for follow-through at the school and district level. In Georgia, the performance standards are the same for teachers of CTAE and non-CTAE subject areas. Yet there exists an array of professional development opportunities, as well as classroom settings that greatly differ.

The areas measured in the CCRPI are Achievement, Progress, Opportunity Gap, ED/EL/SWD Performance, Exceeding the Bar, Performance Flags, Financial Efficiency, and School Climate. All of these areas are used to create a composite score that measures School Systems' College and Career Ready Performance Index, (GDOE, 2015). In turn, the goal of the school systems is to increase student achievement through satisfying the criterion of the CCRPI. This accountability system differs from prior federally mandated measurement instruments by its comprehensive nature. According the Georgia Department of Education (2017), the CCRPI measured 14 elements for middle schools, while measuring 18 elements at high schools. The CCRPI also measures performance and student outcomes in Career, Technical, and Agricultural Education (CTAE). However, CTAE has never been evaluated in a manner that demonstrated significant impact on how schools and districts are assessed as it relates to student achievement.

Although high stakes standardized testing is still a significant element of a school's and district's overall CCRPI score, the CTAE teacher plays a more prominent role in the success of schools and districts. For instance, according to the Georgia Department of Education (2017), points were earned on the CCRPI for the "Percent of graduates completing a career-related Work-Based Learning Program or a career-related Capstone Project (includes International Baccalaureate (IB) projects)" (p. 5). There are several elements of the performance index that call for CTAE to have a more significant role in the success of the school and district as it relates to CCRPI. Therefore, each CTAE teacher needs to have the tools to ensure the highest probability of student achievement as well as meet the elements of the CCRPI (Georgia Department of Education, 2015).

To ensure school and district success, teachers of CTAE subjects need to be equipped with the tools necessary to meet expectations and the means through which to execute them. Erroneously, CTAE classes have been at times perceived as places that students go to after the important learning has taken place in academic subjects such as English Language Arts (ELA), the Humanities, Math, and Science. However, in the current educational environment, all teachers are held accountable and responsible for fulfilling their role in the success of the school and district.

In addition to school and system accountability, teachers of CTAE subjects are also personally held accountable for their professional growth. In the state of Georgia, all teachers, including teachers of CTAE subjects, are evaluated using the Teacher Keys Effectiveness System (TKES). According the Georgia Department of Education (2015), "Teacher Keys Effectiveness System (TKES) consists of multiple components,

including the Teacher Assessment on Performance Standards (TAPS), Surveys of Instructional Practice, and measures of Student Growth and Academic Achievement. The overarching goal of TKES is to support continuous growth and development of each teacher" (Georgia Department of Education, 2015, para. 1). The TAPS component of the TKES process is comprised of ten performance standards and rubrics that inform practices teachers should demonstrate proficiency.

Although there are multiple workshops, conferences, school and district-based professional development offerings that address the professional development needs of teachers of non-CTAE subjects, there has been no analysis of professional development programming that prioritizes the needs of CTAE teachers as it related to the Georgia TAPS Standards. This deficit highlights the need for professional development to be well planned, incorporating local, state, and national standards. Loveland (2012) stated that "by writing professional development plans that link performance-based goals to standards and specific training, technology teachers and postsecondary faculty will go a long way toward ensuring that their students are taught through standards-based methods and content, thereby leading to effective student learning and increased technological literacy" (p. 31).

As one of the divisions of the Office of Career, Technical, and Adult Education (2014), the Career and Technical Education division of the OCTAE is responsible for the following tasks: distributing Perkins funding, assisting in states career and technical program quality, implementation, accountability, and improving rigor in career and oriented programs. In turn, states use initiative funding to improve Career and Technical Education (CTE). The states also have a role in the success of CTE. States provide the

curricular specific professional development that CTE educators need to fulfill this obligation to meet their specific and changing instructional needs. These factors further substantiate the need for improved CTAE professional development especial as it relates to Georgia TAPS.

It was important to prioritize teachers professional development needs as they relate to the Georgia Teacher Performance Standards. This study developed a list of prioritized professional development topics for CTAE instructors. Selected CTAE teacher demographic variables were used to distinguish the needs best suited for relevant subgroups (i.e. years of CTAE experience, school type, and school population). These categories of CTAE teachers allow for program improvement, portability, and improvement to the relevance of professional development activities. According to Georgia TAPS, all teachers must demonstrate proficiency of prescribed performance standards. This study prioritized each criterion/performance standard based on the needs and competencies of categorized CTAE teachers.

Theoretical Framework

The conceptual framework used for this study will be Professional Development Theory (Semadeni, 2009). This framework identified and addressed the need for secondary schools to approach and implement staff development in a manner that is more aligned with adult learning methodologies while specifically addressing the instructional needs of CTAE teachers. Professional development in school system, schools, and meetings should be differentiated to meet the needs of the participants (Husby, 2005). Additionally, Knowles, Holton, and Swanson (2011) contended that the adult learner should be a contributor in the learning process. Through this experience, the CTAE

instructor will be more motivated to participate in the professional development process.

The development of new professional development models can begin on a small scale, potentially leading to broader program improvement initiatives (Guskey & Kwang, 2009). Quality professional development may have broader implications based on the context of their application. CTAE teachers had similar experiences based on years of CTAE experience, school type and school population. Collaboration amongst these subgroups my yielded considerations for program improvements. Educators value program improvements informed by collaboration and relevance as they participate in professional development (Guskey, 2003). Although teachers might have similar experiences, based on their instructional settings, Weidenseld and Bashevis (2013) contended that a teacher's career stage might play a significant role in the professional development that was best suited for them. Professional Development informed by the identified needs of the teacher yielded higher quality content specific learning and competence development (Kallioinen, 2011).

According to the Georgia Department of Education (2015) CTAE professional development opportunities involved the following topics: Accountability and Program Improvement, Career Development and Counselors, Career Technical Student Organizations, Career Related Education, Transition Career Partnerships, Industry Certification Partnerships, Transition Career Partnerships, and Program Delivery Specialist. The professional development recommended by the state was intended to strengthen CTAE instructors and administrators program delivery. Professional development should be relevant and enrich the participants practice. Adult learners needed problem-centered and job embedded tasks that allowed for professional growth

(Zepeda, Parylo and Bengtson, 2014).

Problem Statement

The problem was that the professional development needs of teachers of CTAE subjects had not been identified and prioritized, as it related to the TAPS Performance Standards. CTAE's contribution to student performance was underutilized because of the lack of emphasis in CTAE teacher professional development. The results of the study yielded customized and broad recommendations for CTAE professional development program improvement.

Purpose of the Study

The purpose of this study was to identify and prioritize professional development programs to meet the general and specific needs of teachers of CTAE subjects. This study provided a model for professional development program planning and improvement.

Research Questions

The following research questions will guided this study:

1. What are the prioritized professional development needs of CTAE teachers as related to Georgia Teacher Performance Standards (TAPS)?
2. What are the differences in professional development needs based upon the level of experience of teachers of CTAE subjects (beginning, mid career, veteran, and late career)?
3. What are the differences in professional development needs based upon the school setting in which teachers of CTAE subjects work (comprehensive secondary setting, career academy, middle school, and high school)?

4. What are the differences in professional development needs based upon the school population size for teachers of CTAE subjects (small, medium, and large)?

Conceptual and Operational Definitions of Key Terms

The following terms were identified and described because of the frequency of use during this research study:

- Career and Technical Education (CTE): A term given to secondary and post secondary content areas that promote workforce education, employability, and job skills. These content areas include 12 concentrations (Office of Career, Technical, and Adult Education, 2014).
- Career, Technical, and Agricultural Education (CTAE): Adopted acronym given to Georgia CTE acknowledging the 17 career clusters, including agriculture education.
- College and Career Readiness Performance Index (CCRPI): "a comprehensive school improvement platform for all educational stakeholders that will promote college and career readiness for all Georgia public school students" (Georgia College and Career Academies, (2018).
- Common Planning Time (CPT): Planning time that enables teachers of the same subject, grade level, or team to collaborate and plan (Haverback & Mee, 2013).
- End of Course (EOC): End of Course testing that students take at the end of the school year measuring their understanding of specific course-related content.

- Professional Development: The concept of addressing general and specific programming needs through continuing education (Pelavin Research Institute, 1998).
- Student Learning Objectives (SLO): The element of Teacher Keys Effectiveness System that measures student growth (Georgia Department of Education, 2015)
- Teacher Assessment of Performance Standards (TAPS): Standards used to evaluate all teacher performance in the state of Georgia (Georgia Department of Education, 2015)
- Teacher Keys Effectiveness System: Teacher evaluation system for Georgia educators (Georgia Department of Education, 2015)
- Vertical Planning: Planning that takes place within a school district, allowing collaboration amongst teachers of different grades within the same (or similar) concentration.

Limitations of the Study

A limitation to the study was that the population of teachers only came from eight school systems within the Metropolitan Atlanta RESA. The population sample did not include teachers outside of the metropolitan Atlanta area, therefore limiting the generalization of the results. The use of perceptual responses was a limitation as these data rely on the subjectivity of respondents. The perceptions and judgments of participants with regards to the importance of competencies and ability were subject to change, therefore limiting the confidence of the results. Also, the participating school system's institutional review board, research review board, and/or research application review process were a limitation. Each school system's participation was contingent on

administrative approval. Another limitation was assumption of honesty by participants. To neutralize this limitation, the sample population included eight Metropolitan RESA school systems. Lastly, time was a limitation. The survey instrument was only available for a specified period of time. Participants' work schedules and work related activities limited their ability to complete the survey within the allotted time frame. Lastly, the spring semester of the academic year was a period of increase school based activity (i.e. standardized testing preparation, state required testing, and classroom observations).

Significance of the Study

The significance of this study recommended better practices within the Georgia metropolitan school districts as it related to the design and implementation of professional development for teachers of CTAE subjects regarding the TAPS Performance Standards. This study provides research and recommendations to change the practice of subjecting faculty and staff to "whole staff" professional development. The results of the study provide recommendation with the objective to increased CTAE engagement. Having teachers that are more engaged and exercising better instructional practices positively impacts schools' CCRPI scores. Additionally, the recommendations of this study may lead to more consideration when planning for CTAE professional development. Lastly, this study provided recommendations that will inform future professional development program planning of metro RESA schools and districts.

Chapter II

REVIEW OF THE LITERATURE

Professional Development

Professional development was an important element of educational program improvement. It provided teachers, leaders, and organizations with opportunities to train, retool, and prioritize competencies and abilities that were integral to the success of programming and curricula. Although much of the prior research had been associated with the Agricultural aspects of Career, Technical and Agricultural Education (CTAE), the literature revealed a broader context including all underserved and underutilized facets of CTAE. Teachers and administrators alike, used professional development to learn new strategies, build on existing practices, and become abreast of emerging trends within their content area. Professional development was generally seen as a tool to improve programs. Nonetheless, teachers might have been exposed to experiences that did not necessarily meet their needs. Specifically, teachers of CTAE subjects might have participated in professional development that was not catered to their specific needs. Yet, nationally, students had shown success from CTAE programs (Lavigne, Shakman, Zweig & Greller, 2016; Gentry, Rizza, Peters, & Hu, 2005). Therefore, it was incumbent upon CTAE programs to customize professional development offerings to meet curricular needs of CTAE teachers and programs.

Professional development research suggested that program evaluation should take place before methods of program improvement be implemented. According to Royse,

Thyer, Padgett, and Logan (2001) program evaluation required a needs assessment that identified specific areas of need. Addressing the needs of teachers at various levels of their careers through differentiated learning opportunities enriched the experience for all participants of professional development (Santrock, 2011; Husby, 2005; Wood, Goodnight, Bethune, Preston, & Cleaver, 2016). In addition to differentiated learning opportunities, adult learners, were to have influence to help customize professional learning topics (Knowles, Holton, & Swanson, 2011). Perry and Wallace (2012) also contented that CTE programs' professional learning benefited from customized instruction, based on the audience.

Knowles et. al, (2011) suggested that when adult learners were a part of the program improvement process, participants would be more motivated to participate, engage and transfer instruction. Once competencies and/or abilities were identified, Borich (1980) contended that program improvement could be accomplished by satisfying the quantitatively identified unmet needs of an organization. Surveys could be used to collect data in a needs assessment. Royse et. al (2001) stated, "a formal needs assessment weighs the accumulated data and makes a judgment about the severity of the need that can result in the setting of priorities" (p. 55). Just as Borich (1980) and Royse et. al (2001) suggested competency identification and prioritization could be used to make improvements to groups and settings, the literature suggested that customized professional development could be provided to teachers of CTAE subjects once competences were identified and prioritized.

Accountability and Career and Technical Education

Career and technical education (CTE) in the United States formally began with the Smith-Hughes Act of 1917 (Gordan, 2014). As career and technical programming evolved, vocational training and apprenticeships were seen as ways to develop students to take part in an industrialized workforce. Federal funds earmarked for career and technical programs were primarily given to individual states to meet their workforce needs. Wang and King (2009) contended that as the U.S. workforce needs shifted to information-oriented occupations, CTE programs reflected those changes. While CTE programming adapted to meet workforce needs, the 1990s ushered in new federal and state expectations.

The No Child Left Behind Act of 2001 was a massive overhaul of public education. The introduction of new expectations had an influence on all public schools. The No Child Left Behind Act of 2001 placed significant emphasis on reading, math, and science scores; teacher accountability; state standardized testing scores; highly qualified teaching requirements for all teachers; detailed student performance reports; and school choice for students in under performing schools (U.S. Department of Education, 2002a). The standards and expectations by NCLB had little consideration for CTE and increased the amount of pressure placed on schools and school systems. The pressure to perform was further increased with the introduction of the Race to the Top Program in 2009. The Race to the Top program was a federal grant program that provided $4.35 billion in competitive grants to schools and school systems. Each competitive grant was awarded based on the performance score earned by schools and systems. The performance score was comprised of six criterions determined by the federal government (Great Teachers

and Leaders; State Success Factors; Standards and Assessments; General Selection Criteria; Turning Around the Lowest-Achieving Schools; and Data Systems to Support Instruction) (U.S. Department of Education, 2009). In this evolving landscape of education, CTE was not given particular consideration as federal changes were implemented.

According to Gordon (2014), the expectation for CTE programs was to increase traditional academic and workforce performance. No Child Left Behind and Race to the Top influenced how CTE was viewed as it related to school and system performance. The federal influence was clear, however state implementation regarding CTE had yet to be clearly articulated. A 2014 study of the funding formulas for state CTE programs demonstrated that each state established different expectations for performance and that a variety of needs existed for each state as it related to CTE (U.S. Department of Education, 2014). CTE professional development considerations were not considered during the formulation and execution of federal education legislation.

Needs Assessments for Program Improvement

Needs assessments are used to improve program and organizational performance. Needs assessments use qualitative and quantitative data to inform changes that positively impact performance. Needs assessments not only identify deficiencies, but also provide guidance for program improvement (Royse, et. al., 2001). The tasks, standards, and knowledge needed to perform work-based tasks can be used as the criterion for program improvement. According to Van Tiem, Moseley, and Dessinger (2012), a knowledge task analysis identifies the performance tasks needs and determines gaps in performance. Borich (1980) used a needs assessment for program improvement model to provide

recommendations to improve the performance of organizations. Needs assessments have been used to identify needed professional development topics in competencies as it related to classroom instruction (Peake, Duncan, Rickets, 2007). Kitchel, Cannon, and Duncan (2010) conducted a needs assessment that identified and explored the perceived competency needs for students to be successful in post secondary environments. The needs assessment model has various uses in identifying the needs of an organization. This model utilizes the priorities set forth by the organization as the basis for identifying the specified needs of that organization.

Georgia Teacher Assessment of Performance Standards

The Georgia Teacher Assessment of Performance Standards (TAPS) is a diagnostic formative assessment tool used by system administrators measure teacher performance. The Georgia Department of Education (2014) stated, "The three components are Teacher Assessment on Performance Standards (TAPS), Professional Growth and Student Growth. The overarching goal of TKES is to support continuous growth and development of each teacher" (para. 3). The Georgia General Assembly established this accountability measure in 2013 (Georgia General Assembly Legislation, 2013). The TAPS component of this accountability measure were a set of ten competencies that all Georgia teachers should be competent in (see Table 1). These competencies could be observed by administrators and rated based on the performance level achieved by the teacher being observed (Georgia Department of Education, 2014).

Table 1

Georgia Department of Education Teacher Assessment of Performance Standards

Standard	*Performance Indicator*
1. Professional Knowledge	The teacher demonstrates an understanding of the curriculum, subject content, pedagogical knowledge, and the needs of students by providing relevant learning experiences.
2. Instructional Planning	The teacher plans using state and local school district curricula and standards, effective strategies, resources, and data to address the differentiated needs of all students.
3. Instructional Strategies	The teacher promotes student learning by using research-based instruction strategies relevant to the content to engage students in active learning and to facilitate the students' acquisition of key knowledge and skills.
4. Differentiated Instruction	The teacher challenges and supports each student's learning by providing appropriate content and developing skills which address individual learning differences.
5. Assessment Strategies	The teacher systematically chooses a variety of diagnostic, formative, and summative assessment strategies and instruments that are valid and appropriate for the content and student population.
6. Assessment Uses	The teacher systematically gathers, analyzes, and uses relevant data to measure student progress, to inform instructional content and delivery methods, and to provide timely and constructive feedback to both students and parents.
7. Positive Learning Environment	The teacher creates a student-centered, academic environment in which teaching and learning occur at high levels and students are self-directed learners.
8. Academically Challenging Environment	The teacher creates a student-centered, academic environment in which teaching and learning occur at high levels and students are self-directed learners.
9. Professionalism	The teacher exhibits a commitment to professional ethics and the school's mission, participates in professional growth opportunities to support student learning, and contributes to the profession.
10. Communication	The teacher communicates effectively with students, parents or guardians, district and school personnel, and other stakeholders in ways that enhance student learning.

Note. This table was adapted from the Georgia Department of Education TAPS Standards Reference Sheet Performance Standards and SAMPLE Performance Indicators. https://www.gadoe.org/School-Improvement/Teacher-and-Leader-Effectiveness/Documents/FY15%20TKES%20and%20LKES%20Documents/TAPS_Reference_Sheet%206-5-14.pdf

CTAE Professional Development in Georgia

The state of Georgia, like other states, allocated CTAE funding in a manner that best met their perceived needs (U.S. Department of Education, 2002; Carl D. Perkins Career, Technical, and Adult Education Act of 2006, 2006). The Every Student Succeeds Act (ESSA) allowed for such allocation of funds as long as funds were used to close student achievement gaps, and promote achievement and high standards (U.S. Department of Education, 2015). As a result, Georgia created the Career, Technical, and Agricultural Education Resource Network to support the needs of CTAE educators throughout the state. The mission of the CTAE Resource Network was to support CTAE initiatives through professional development activities and instructional resources that were specifically designed for teachers of CTAE subjects (CTAE Resource Network, 2017). These activities were not always aligned to the competencies prescribed by the Georgia TAPS.

CTAE Professional Development

Professional development could be perceived differently based on the learner's career stage. Less experienced learners might interpret instruction differently than a more seasoned adult learner. Knowles et. al. (2011) suggested that the assumptions needed to engage in adult learning were significant factors to adult learning. Similar to Knowles et. al (2011), Kallioinen's (2011) research suggested that the learning by developing model could be employed to help teachers of CTAE subjects with transformative career growth. A Ruhland and Bremer (2002) study found that a "one-size-fits-all" method of professional development was not the best method for teachers of various backgrounds. A less experienced teacher might not be responsive to profession

development because of the lack of exposure to experiences that were applicable to the professional learning. Conversely, Ruhland and Bremer (2003), contended that teachers of CTAE subjects might be new in the classroom, but very familiar with their content area based on prior workforce experience.

Beginning teachers of CTAE subjects may not have the experience needed to apply concepts learned through professional development activities. "It takes time, dedication, hard work, and learning for new teachers to be able to reflect on personal experiences" (Kumi-Yeboah & James, 2012, p. 170). Furthermore, Goodson (2014) offered a contextual approach to understanding work environments and forces that influenced daily practice. Novice teachers of CTAE subjects were challenged with intrinsic and extrinsic forces that made it challenging to understand how to navigate instruction. While there were multiple factors that occurred after beginning teachers were in the CTAE instruction environment, Adams (2010) found that there was a need for CTAE preparation programs to better prepare students for the workforce. Additionally, a study conducted by Wichowski and Heberley (2004) for the Association for Professional Development in Career and Technical Education, found that external factors might shift the priorities of teachers of Career and Technical instruction. Well-planned and focused professional development could offer clarity to some of the internal, external, and political challenges that teachers of CTAE subjects encountered.

Seasoned teachers of CTAE subjects also had challenges that impacted their perception of professional development. Juxtaposed to novice teachers, veteran teachers might have experiences that affected their judgments of professional development. Drage (2010) contended that although teachers were intrinsically driven to learn, extrinsic

pressure from legislation, and pressure for promotion and salary concerns were factors that impacted how they perceived the utility of professional development. State endorsed professional development programs should not only offer teachers of CTAE subjects courses that strengthened their practice, but also identified their needs and customized the professional development to meet their needs.

A study by Rice, LaVergne, and Gartin (2011) identified the factors of student motivation and laboratory conditions that affected teacher motivation. Although these factors might be considered to be in the direct control of the teacher, continuing education in those areas of greatest need were not offered, but merely identified. For instance, Rice et al. (2011) stated, "respondents strongly agreed that having good classrooms and laboratories are desirable factors that promote teacher longevity" (p. 112). This study took place in West Virginia, but the factors surrounding teacher motivations, perceptions, and needs, could be similar in Georgia. The CTAE Resource Network aimed to meet the needs of teachers of CTAE subjects in the state of Georgia (CTAE Resource Network, 2017). However there was a disconnect regarding professional development needs at the school system level. Borich (1980) provided a model to identify and prioritize those needs.

Chapter III

METHODOLOGY

In Chapter 3, the researcher presented rationale for why this research benefited teachers of Career, Technical, and Agricultural Education (CTAE) subjects as it related to Georgia Teacher of Performance Standards (TAPS). This chapter identified the target population and specified how and why the sample population was selected. Variables were stratified based upon specified demographic information. The researcher provided a detailed description of the research design, as well as the method of analysis that occurred. The survey instrument was explained in addition to how each variable was analyzed using statistical methods.

Introduction

Professional development is an integral component of CTAE program improvement (Green, Moor, and Clark, 2015). Teachers of CTAE subjects, and administrators alike, agreed that it was important to allow teachers opportunities to improve their practice through well planned CTAE professional development that was relevant to participants regardless of content area (Cannon, Kitchel, and Tenuto, 2013). In addition to content differentiation, CTAE teachers' career stage, school setting, and school type should inform considerations for professional development. All of the mentioned variables could potentially shape the perspective of CTAE teachers. Professional development should be customized and differentiated to meet the needs of

everyone, regardless of their work situation (Cannon, Kitchel, and Duncan, 2010). Professional development is a perpetual process for all practitioners regardless of position (Threeton, 2007). This study described and identified the relationship between perception of importance and ability to perform expected teacher competencies. Cannon et al. (2010) contended that customizing teacher professional development to the needs of teachers led to CTAE program improvement.

The researcher implemented a survey research design with teachers of CTAE subjects within the Atlanta Metropolitan RESA (Metropolitan Regional Education Services Agency, 2016). The purposeful sample of teachers of CTAE subjects was selected because of each school systems' proximity to one another in addition to specificity of their subject areas relative to non-CTAE teachers (Creswell, 2009). CTAE directors, teachers and administrators may have experience collaborating and communicating, thereby increasing the probability of motivation to participate in this research study.

The survey enabled the study population sample ($N = 279$) to rate their perceived importance and perceived ability for each of the 20 competencies from the Teacher Assessment of Performance Standards (TAPS) (Georgia Department of Education, 2015). TAPS was a measurement tool used to evaluate the certified teacher performance. The surveys provided valuable data that can be used to inform program improvement decisions and customize professional development offerings to teachers of CTAE subjects.

Teachers of CTAE subjects in the schools located within the Metro RESA school systems were given surveys that identified demographic information and rated their

perceived level of importance and their perceived level of competency for each of the standards within the Georgia TAPS. Surveys are used to collect data for descriptive studies. Creswell (2009) defined surveys as "a quantitative or numerical description of trends, attitudes, or opinions of a population by studying a sample of that population" (p. 145). When a researcher is seeking the general views and perceptions of an individual or organization, surveys are the most appropriate way to obtain this information. Surveys are useful in descriptive research because of its ability to quantify these data for generalization of a thought or idea. The results yielded recommendations for future professional development opportunities to meet the needs of the identified demographic variables.

Purpose of the Study

This descriptive and relational study employed a research methodology that yielded quantitative data. The purpose of descriptive research is to identify and document occurrences that may or may not be associated with a particular phenomenon (Creswell, 2015). According to Anastas and MacDonald (1999) relational research identified, described, and provided analysis to relationships between selected phenomena or groups. The model was based on the modified needs assessment model developed by Borich (1980). The purpose of the study is to identify and prioritize the professional development needs of teachers of CTAE subjects in the metropolitan Atlanta region. Additionally, the study provided an understanding of the relationship between teacher competency and the perceived level of professional development needed to meet or exceed the expected level of performance on the Georgia Teacher Assessment Performance Standards. Borich's Needs Assessment Model enabled the researcher to

identify discrepancies in current professional development practices and analyze "what it is" vs "what it should be" (Borich, 1980).

The survey was two-fold: first demographic information was solicited and secondly, survey responses identified importance as it related to competence. Each research question was answered based on the analysis of the data yielded from the demographic portion of the survey and calculating the Mean Weighted Discrepancy Score (MWDS) from the rated portion of the survey for each of the specified variables. The completion of this analysis yielded results that answered all research questions. The research led the Georgia metropolitan school districts to a better understanding of how to best provide professional development to teachers of CTAE subjects as it related to the standards set forth by the Georgia Department of Education.

Research Questions

The following research questions guided this study:

1. What are the prioritized professional development needs of teachers of CTAE as related to Georgia Teacher Performance Standards (TAPS)?
2. What are the professional development needs based upon the level of experience of teachers of CTAE subjects (new, mid-career, veteran, and late career)?
3. What are the professional development needs based upon the school setting in which teachers of CTAE subjects work (comprehensive secondary setting, career academy, middle school, and high school)?
4. What are the professional development needs based upon the school population size for teachers of CTAE subjects (small, medium, and large)?

Research Design

In this research study, contact was made with key informants to gain access to the desired sample. All CTAE directors within the Metro RESA received communication requesting their influence, support, and participation in the research study (see Appendix A). Once approved, Qualtrics® surveys were distributed online to selected teachers of CTAE subjects within the Metro RESA ($N = 279$). Upon completion of survey by participants, the researcher analyzed these data for descriptive statistics (i.e. frequency, mean, and standard deviation). In addition to descriptive statistics, further analysis yielded the Mean Weighted Discrepancy Score (MWDS). According to Borich (1980), his model for needs assessment identified the most significant areas of professional development need. Borich (1980) provided a model for program improvement that included the following procedures: 1. List Competencies; 2. Survey Teachers; 3. Rank Competency; 4. Compare High Priority Competencies; and 5. Revise Program or Revise Competencies. Each competency's MWDS was used to inform prioritization regarding professional development program improvement. The competencies with the greatest discrepancy were given greatest priority. Conversely, the competencies with the least discrepancy were given the least priority. Upon completion of analysis, professional development program improvement recommendations were determined based on survey results.

The research data collected in this study was comprised of survey responses from teachers of CTAE subjects. These data were analyzed using a MWDS calculator created by McKim (2014). Each variable was identified and statistically analyzed to determine

the areas of greatest competency need. The results of the statistical analysis informed recommendations for CTAE professional development program improvement.

Population and Sample

The population for this study was teachers of CTAE subjects in the state of Georgia. The sample was comprised of selected teachers of CTAE subjects in the Metropolitan RESA ($N = 279$) (see Table 2). All of the participants of the study were certified teachers teaching in secondary settings during the spring semester of 2018. The sample represents a total of 387,906 students. The sample was representative of specified variables required to conduct the research study. The demographic variables that were identified and statistically analyzed are as follows: CTAE experience, school type, and school population. Table 2 provides a description of the participating school systems, city, overall enrollment, secondary enrollment, and number of teachers of CTAE subjects.

Table 2

Participating Metropolitan Regional Education Services Agency School Systems

School District	City	Enrollment	Secondary Enrollment	Number of CTAE Teachers
Atlanta City Schools	Atlanta	58594	26221	132
Decatur City Schools	Decatur	5200	2450	17
DeKalb County Schools	Stone Mountain	115472	57115	267
Douglas County Schools	Douglasville	29001	15847	81
Fulton County Schools	Atlanta	103531	55954	216
Forsyth County Schools	Cumming	47806	25595	105
Marietta City Schools	Marietta	10027	4845	20
Rockdale County Schools	Conyers	18275	9978	124
	Total	387906	198005	962

Instrumentation

The questionnaire developed was based on modified instruments used in *Oregon Industrial and Engineering Teachers' Perceived Professional Development Needs*

(Moon, 2014) and *Assessing Needs of Middle School Agriculture Teachers in Georgia* (Golden, 2013). The survey was customized to meet the needs and purpose of the study to identify and prioritize the professional development needs of metropolitan Atlanta CTAE subject teachers related to the TAPS. Each of the aforementioned researchers used The Borich's Needs Assessment Model. The researcher also used this model to further develop the instrument. Participants answered demographic information followed by the rating of twenty competencies prescribed by the TAPS.

The demographic questions allowed participants to specify their level of teaching experience, their school type, and their school population. Specified teacher demographic variables were as follows:

- CTAE Experience
    - Beginning (0 – 5 years experience)
    - Mid-Career (6 – 10 years experience)
    - Veteran (11 – 20 years experience)
    - Late Career (21 years experience – above)
- School Type
    - Comprehensive Secondary School Setting
    - Career Academy
    - Middle School
    - High School (i.e. Magnet, Vocational, Alternative)
- School Population
    - Small (799 or less)
    - Medium (800 – 1399)

- Large (1400 and above)

Upon completion of demographic information, participants rated the TAPS standards/competencies based on the teachers' perceived importance. Then teachers were asked to rate their perceived ability in each TAPS standard. A Likert-type scale was used to rate the perceived importance and perceived competence for each TAPS standard. The rating scale consisted of the following responses: Not Important, Low Importance, Somewhat Important, Important and Very Important. Likert-type surveys assign values to the responses that participants select. Once these values are assigned, the researcher drew comparisons between the items selected. A Likert-type scale requires an individual to respond to a series of statements by indicating whether the survey participant strongly agrees, agrees, is undecided, disagrees, or strongly disagrees (Croasmun and Ostrom, 2011). The values assigned to each participant response was given a numerical value between one and five. The responses and values were as follows: Not Important = 1; Low Importance = 2; Somewhat Important = 3; Important = 4; and Very Important = 5.

The instrument was used to measure the perceived competence of participants as it related to the identified competencies within Georgia TAPS. The participants' perceived competency score was rated concurrently with their perceived importance. The instrument allowed participants to focus on individual standards while providing data for both perceived importance and perceived competence. Perceived competency score values were assigned and compared to perceived importance values providing the researcher with data needed to compare and analyze. Just as with the perceived importance, the competency scores were assigned numerical values between one and

five. The responses and values were as follows: Not Competent = 1; Low Competence = 2; Somewhat Competent = 3; Competent = 4; and Very Competent = 5

Statistical analysis compared each TAPS standards' perceived importance as it related to each teacher's perceived competence in each standard. The statistical analysis yielded a mean weight discrepancy score for each standard that indicated the need for professional development. These collected data informed subsequent professional learning, training opportunities, and program improvement. The ten standards that TAPS assessed were as follows: Professional Knowledge, Instructional Planning, Instructional Strategies, Differentiated Instruction, Assessment Strategies, Assessment Uses, Positive Learning Environment, Academically Challenging Environment, Professionalism, and Communication. Each of the ten standards had additional competencies for a total of 20 competencies (See Appendix D).

The researcher tested the instrument for face and content validity by conducting a pilot study with teachers that are subject to the TAPS evaluation. A sample of 15 teachers participated in the test of the survey instrument. This took place before surveys were released to the Metro RESA teachers of CTAE subjects. The pilot study's sample of teachers ($N = 15$) provided valuable feedback to the researcher. The researcher sought feedback from pilot study participants regarding the instruments ease of use and wording for each section of the instrument. In addition, participants were asked for feedback regarding any challenges that they encountered while using the Qualtrics® interface.

Procedure

The school systems included in this research came from within the Atlanta Metropolitan area (see Table 1). The Atlanta Metropolitan Regional Education Services Agency (RESA) identified the selected school districts for the study based on the proximity to the Atlanta Metropolitan region (Metropolitan Regional Education Services Agency, 2016). The researcher made initial contact with Metropolitan RESA CTAE directors prior to instrument development. This contact was made to request support and influence with teachers of CTAE subjects that are under their leadership (Appendix A). Contact was also made with the administration of the teachers selected to be part of the pilot study. Lastly, a request was made to Valdosta State University IRB seeking permission to collect data and conduct the research study.

The survey instrument was created using the online interface Qualtrics®. Qualtrics® is a web based survey platform that enables users to conduct business and academic research through surveys. Qualtrics® surveys can be customized to meet the needs of the research as it relates to the end users' experience. Measures were taken to ensure all participants' user information and responses were anonymous. Upon completion of the survey instrument, a MWDS calculator was obtained to analyze responses. A pilot study was administered to a certified teacher sample to test the survey instrument's readability, face ,and content validity. The researcher used feedback from the pilot study's participants to determine changes that needed to be made to the survey instrument.

Upon administration of the pilot study, the researcher identified the participating systems within the Metropolitan RESA, gained Valdosta State University IRB approval,

gained school system approval, and sent participating teachers of CTAE subjects an email requesting their participation (See Appendix C). The researcher also sent a follow-up email to participating CTAE directors to inform them that the instrument was distributed and available for a specified period of time. After the first contact was made with participants requesting that they complete the survey, the online instrument remained available for a period of 20 days. Follow-up procedures were taken with CTAE directors and teachers of CTAE subjects to increase the potential for a higher rate of survey completions. A reminder was sent to participants on the tenth and 18th day reminding them to complete the instrument within the specified survey window. Contact was made with key informants such as principals, CTAE Directors, teachers, and the appropriate IRB personnel.

Descriptive Statistics

According to (Goos and Meintrup, 2015), descriptive statistics were used to summarize the population sample. Descriptive statistics provided the researcher statistical descriptions of variables within the selected sample. The researcher used frequencies, means, and standard deviations to describe the population sample. Using the mean is an appropriate and useful statistic when measuring scaled data. A mean perceived importance and perceived competency score was yielded for each demographic variable (career stage, school setting, and school population) within the population sample. Each variable's frequency was analyzed to identify response trends. Lastly, the standard deviation was analyzed for each variable to determine demographic variability (Patton, 2002). The descriptive statistics were interpreted by the researcher, informing individual and collective recommendations for each variable.

Data Analysis

Upon determining the overall professional development needs of the participants, demographic variables were analyzed using descriptive statistics (i.e. frequencies, means, and standard deviations) for CTAE teacher experience, school type, and school population. The sub categories' descriptive data was identified and analyzed using a SPSS™. The CTAE experience category surveys yielded statistical analysis for new, mid-career, veteran, and late career teachers. The school type category yielded statistical analysis for comprehensive secondary school setting, career academy, middle school, and high school settings. Lastly, the school population category yielded statistical analysis for small, medium, and large school populations within the Atlanta Metropolitan RESA (Metropolitan Regional Education Services Agency, 2016).

The initial discrepancy score for the TAPS standards/competencies was calculated by subtracting the perceived competency score from the perceived importance score. Calculating the weight of each standard by multiplying the mean discrepancy score and the mean importance score followed this. The mean weighted discrepancy score (MWDS) was calculated by dividing the sum of completed competency responses by sum of the weighted discrepancy scores (Joerger, 2002). The survey instrument was modeled after the survey used by Garton and Chung (1997). Twenty competencies were selected based on the Teacher Assessment Performance Standards (TAPS) (Georgia Department of Education, 2018). All participants rated their perception of the 20 competencies individually to identify their perceived competence relative to the perceived importance the competency within the context of their CTAE position. Each competency yielded two data points for each of the TAPS standards, the perceived competence of the CTAE

teacher and perceived importance. The categories produced different mean weights based on the sample's perception of competence and importance.

Upon administration of the instrument, respondents' mean scores were analyzed by exporting the Qualtrics® survey results into a mean weighted discrepancy score calculator created by McKim et al. (2011) (Appendix B). This determined mean weighted discrepancy scores for each of the 20 competencies prescribed by the Georgia Teacher Assessment Performance Standards (Georgia Department of Education, 2015). Once weighted, each competency were ranked, identifying the areas of greatest need for each of the identified variables. Thus providing statistical analysis that was used to inform customized professional development recommendations for teachers of CTAE subjects.

Limitations and Delimitations

The findings of this research benefit certified teachers of CTAE subjects within the state of Georgia who are subject to Teacher Assessment Performance Standards (TAPS). The sample used in this study consisted of teachers located within the Atlanta Metropolitan RESA. The results of this research yielded recommendations for professional development programs that can be somewhat generalized to the Atlanta Metropolitan RESA schools and with limitation to CTAE programs outside of the sample population.

A limitation to the proposed study was that the population of teachers only came from systems within the Metropolitan Atlanta RESA. Although the population sample included specific school systems within the Atlanta Metropolitan area, the results yielded are limited to the region based on the volume of participants relative to the population of

teachers of CTAE subjects with the state of Georgia. The use of perceptual responses was a limitation as these data rely on the subjectivity of respondents. The perceptions and judgments of participants with regards to the importance of competencies and ability were subject to change, therefore limiting the confidence of the results. Another limitation was the assumption of honesty by participants. To neutralize this limitation, the sample population included eight Metropolitan RESA school systems. Lastly, time was a limitation. The survey instrument was only available for a specified period of time. Lastly, the spring semester of the academic year was a period of increase school based activity (i.e. standardized testing preparation, state required testing, and classroom observations).

Summary

In this empirical quantitative study, the researcher used a research design that yielded quantitative data. The quantitative data was obtained through the use of online survey results from teachers of CTAE subjects in eight Metro RESA school systems (Metropolitan Regional Education Services Agency, 2016). This survey produced demographic data and scaled ordinal rating data from the responses. The analysis of these data resulted in means, frequencies and percentages (Patton, 2009). The survey was pilot-tested for validity and readability before administration. All data was merged for interpretation.

All teacher data was collected and analyzed within the designated period. The collected data was analyzed by calculating and prioritizing Georgia TAPS standards using Means Weighted Discrepancy Scores (MWDS) for teachers of CTAE subjects. The standards were then ranked based on the TAPS Performance Standards that have the

greatest numerical valued MWDS. This process and method of research identified the areas of highest professional development need. The analysis of data yielded information helpful in guiding the planning and implementation of professional development to teachers of CTAE subjects within the Metro RESA. Findings of the proposed study was reported and distributed to all stakeholders for review and disclosure

CHAPTER IV

FINDINGS

Introduction

The purpose of this quantitative study was to identify and prioritize professional development topics for teachers of CTAE subjects within the Atlanta metropolitan region. This study was primarily relational, but had descriptive components that relied on quantitative data. The findings of the research yielded results that identified and prioritized professional development offerings based on research conducted. The ten criterion and competencies prescribed by Teacher Assessment of Performance Standards (TAPS) were incorporated in a survey that measured teachers of CTAE subjects' perception of TAPS competencies with regard to the importance prescribed criterion.

The research study findings were based on the responses from teachers of CTAE subjects within the sample population. The researcher coordinated with all CTAE directors within the Metropolitan RESA and obtained Institutional Review Board (IRB), Research Review Board (RRB), and Research approval to electronically distribute surveys to teachers of CTAE subjects during the survey window. A total of eight schools systems within the Atlanta Metropolitan area chose to participate in this research study. The sample population consisted of 279 participants that responded to an online survey (29.5%). Each response was aggregated, disaggregated and analyzed to identify each competency's rank regarding the need for professional development program improvement. The competencies prescribed by TAPS were analyzed using the Mean

Weighted Discrepancy Score MWDS and prioritized collectively and within each variable. The statistical analysis of data was executed in accordance with the questions that guided the research study.

Review of the Research Questions

This research study was guided by the following research questions:

1. What are the prioritized professional development needs of CTAE teachers as related to Georgia Teacher Performance Standards (TAPS)?
2. What are the differences in professional development needs based upon the level of experience of teachers of CTAE subjects (beginning, mid career, veteran, and late career)?
3. What are the differences in professional development needs based upon the school setting in which teachers of CTAE subjects work (comprehensive secondary setting, career academy, middle school, and high school)?
4. What are the differences in professional development needs based upon the school population size for teachers of CTAE subjects (small, medium, and large)

Population and Sample

The target population for the research study was comprised of teachers of CTAE subjects within the 12 school districts that make up the Atlanta Metropolitan Regional Education Service Agency (Metro RESA) ($N = 1618$). There were a total of eight participating school systems. The participating teachers of CTAE subjects represented a variety of content areas. Each content area is representative of CTAE courses taught inside of Metropolitan RESA school systems. The eight participating Metropolitan

RESA school systems, at the time of the research study, had 962 teachers of CTAE subjects for the 2017–2018 school year. This represents 59% of the Metropolitan RESA's teachers of CTAE subjects. The findings of this study are based on the total number participants that completed the online survey instrument during the spring semester of the 2017–2018 school year ($N = 279$). This represents 29% of the teachers of CTAE subjects within the participating school systems.

Data Gathering and Data Analysis

The participants of the research study were presented with an opportunity to rate their perception of importance and competence regarding 20 competencies that are prescribed by the Georgia Department of Education Teacher Leader measurement tool that is used to measure teacher effectiveness. All Georgia K-12 teachers are evaluated using the same measurement standards. The standards of this measurement tool rate each teacher's performance in relation to competencies needed for academic achievement and school system's success. These standards/criteria are referred to as the Teacher Assessment of Performance Standards (TAPS). Using an electronic survey instrument, participants entered descriptive date and rated TAPS standard elements to reflect their perceived importance and competency.

The descriptive and quality scale responses were assigned numeric values to be sorted and calculated for analysis. Once all data was received, each participant was assigned specified demographic variable categories based on survey instrument responses (i.e. experience level, school type, and school size). Each demographic was categorized based on demographic responses from each participant. An aggregated and disaggregated ranking was yielded for importance, competency, and MWDS. Upon

categorizing all participants, statistical analysis was used to determine frequencies, means, percentages, and standard deviation of responses for each instrument item for the perceived importance and competency. The importance and competency means were calculated to determine revealing MWDS for each question item yielding results for the prioritization of professional development topics for teachers of CTAE subjects within the Metropolitan RESA.

Section One: Demographic Analysis

Demographic Data Analysis

During the active period of the survey, a total of 279 respondents completed the online instrument. The following tables represent the responses that each participant identified as their identified demographic category. The number of participants and percentage relative to the total population sample are represented on the each of the demographic variable tables.

Table 3

Number of CTAE Teachers by Experience Group

CTAE Experience	*N*	*%*
Veteran (11-20 years experience)	104	37
Late Career (21 years - above)	72	26
Beginning (0–5 years experience)	60	22
Mid Career (6-10 years experience)	43	15
Total	279	

Table 3 represents the experience demographic variable group. This demographic group is comprised of beginning teachers of CTAE subjects (0–5 years of experience), mid career teachers of CTAE subjects (6–10 years of experience), veteran teachers of CTAE subjects (11–20 years of experience), and late career (21 or more years of

experience). The largest represented categories within the experience variables are the veteran and the late career teachers of CTAE subjects. Collectively, the veteran and late career represent 63% of the experience demographic variable category.

The results/findings for the types of school settings is presented in table Table 4. Table 4 provides a description of the individual school type, number of participants, and percentage of participants.

Table 4

Number of CTAE Teachers by School Type

School Type	*N*	*%*
Comprehensive Secondary School	140	50
High School	62	22
Middle School	61	22
Career Academy	16	5
Total	279	

This demographic group is comprised of four specific school types. The school settings are as follows: Comprehensive secondary school, High School, Middle School, and Career Academy. The largest represented category within the school setting variable is the comprehensive school setting teachers of CTAE subjects. This specific group represents over half of the school type category with 140 respondents. The least represented category within the school type variable was the Career Academy teachers of CTAE subjects representing 5.73% of the total respondents.

The results/findings for school population is presented in table Table 5. Table 5 provides a description of the individual school type, number of participants, and percentage of participants.

Table 5

Number of CTAE Teachers by School Population

School Population	*N*	*%*
Large (1400-above)	128	46
Medium (800-1399)	106	38
Small (799 or less)	45	16
Total	279	

This demographic group is comprised of three school population sizes. The categories represented are small school settings (799 or less student population), medium school settings (800 – 1399 students population), and large school settings (1400 or more students population). The largest represented category within the school population variable is the large school setting teachers of CTAE subjects. This specific group represents 45.87% of the school population category with 128 respondents. The second largest category was the medium school population teachers of CTAE subjects with 106 respondents. Lastly, the smallest category for this variable was the small school setting teachers with 45 respondents representing 16.12% of all participants.

Based on the results described by participants through their responses to the online survey instrument, the majority of teachers of CTAE subjects are comprised of veteran teachers (n = 104) that work in large school population (n = 128) comprehensive high school settings (n = 140).

Section Two: Survey Results

To address research question one, all respondents were asked to identify their perceived importance and perceived competence of twenty competencies prescribed by Georgia TAPS. Each MWDS represents all of the respondents that participated in the research study and each of the demographic variables that were self-identified in the

online survey instrument. CTAE teaching experience, school size, and school type were all identified as demographic variables. The MWDS analysis compared respondents' perceived importance and perceived competence, identifying discrepancies when the perceived importance is greater that the respondents' ability. The higher the numeric value of the discrepancy is an indication to remediate through professional development. Once each importance and competency was ranked, lists were created to indicate the areas of greatest need based on participant responses.

All Demographic Variable Results

Table 6 represents the importance mean scores for the entire sample population. The mean scores described in Table four are ranked based on the competencies that the teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 6

Importance Mean for All Demographic Variables

Competencies Prescribed by Georgia TAPS	*N*	Importance *M*
Communication with Students	279	4.80
Safe and Orderly Instructional Environment	279	4.78
Commitment to Professional Ethics	279	4.77
Knowledge of Content Area	279	4.72
Knowledge of Curriculum	279	4.66
Use of Available Resources for Instructional Planning	279	4.57
Communication with Parents	279	4.57
Student-Centered Academic Environment	279	4.57
Assessment Feedback to Students	279	4.56
Pedagogical Knowledge	279	4.47
Use of Differentiated Instruction	279	4.40
Use Instructional Strategies to Facilitate Instruction	279	4.38
Summative Assessments	279	4.37
Formative Assessments	279	4.35
Communication with District and School Personnel	279	4.34
Content Specific State Standards	279	4.26
Assessment Feedback to Parents/Guardians	279	4.24
Research-based Instructional Strategies	279	4.21
Use of Data for Instructional Planning	279	4.17
Diagnostic Assessments	279	4.10

The importance mean scores above were all above the ranking of four on the survey instrument. The importance means ranged from 4.10 to 4.80. This indicates that the respondents perceived the competencies to be important. Based on participants' responses to the online survey instrument the top five areas of greatest importance are Communication with Students, Safe and Orderly Instructional Environment, Commitment to Professional Ethics, Knowledge of Content Area, and Knowledge of Curriculum. The five competencies of least importance according to respondents are Content Specific State Standards, Assessment Feedback to Parents/Guardians, Research-based Instructional Strategies, Use of Data for Instructional Planning, and Diagnostic Assessments.

Table 7 represents the competency means scores for the entire sample population. The mean scores described in Table 5 are ranked based on the competencies that the teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 7

Competency Mean for All Demographic Variables

Competencies Prescribed by Georgia TAPS	*N*	Competency *M*
Commitment to Professional Ethics	279	4.70
Safe and Orderly Instructional Environment	279	4.56
Communication with Students	279	4.52
Knowledge of Content Area	279	4.47
Student-Centered Academic Environment	279	4.41
Knowledge of Curriculum	279	4.41
Communication with Parents	279	4.35
Content Specific State Standards	279	4.31
Formative Assessments	279	4.29
Summative Assessments	279	4.27
Assessment Feedback to Students	279	4.25
Use of Available Resources for Instructional Planning	279	4.24
Communication with District and School Personnel	279	4.23
Pedagogical Knowledge	279	4.21
Use Instructional Strategies to Facilitate Instruction	279	4.11
Assessment Feedback to Parents/Guardians	279	4.09
Diagnostic Assessments	279	4.02
Research-based Instructional Strategies	279	4.01
Use of Data for Instructional Planning	279	3.98
Use of Differentiated Instruction	279	3.95

In the table above, the respondents' competency mean scores ranged from 3.95 to 4.70. There were only two competencies that have a mean below four. The majority of mean scores are above four. This indicates that the respondents have a high-perceived competence in each category. Based on participants' responses to the online survey instrument the top five areas of greatest competence are Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Communication with Students,

Knowledge of Content Area, and Student-Centered Academic Environment. The five competencies of least competence according to respondents are Assessment Feedback to Parents/Guardians, Diagnostic Assessments, Research-based Instructional Strategies, Use of Data for Instructional Planning, and Use of Differentiated Instruction.

Table 8 represents the MWDS for the entire sample population. The MWDS described in Table 8 are categorized based on the perceived competence and importance of competencies prescribed by TAPS those teachers of CTAE subjects within the Metropolitan RESA responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 8

MWDS Scores for All Survey Participants

Competencies Prescribed by Georgia TAPS	*N*	Importance *M*	Competency *M*	MWDS
Use of Differentiated Instruction	279	4.40	3.95	1.53
Knowledge of Curriculum	279	4.66	4.41	1.17
Use of Available Resources for Instructional Planning	279	4.57	4.24	1.05
Assessment Feedback to Students	279	4.56	4.25	1.03
Communication with Students	279	4.80	4.52	1.00
Use Instructional Strategies to Facilitate Instruction	279	4.38	4.11	0.93
Knowledge of Content Area	279	4.72	4.47	0.88
Communication with Parents	279	4.57	4.35	0.87
Pedagogical Knowledge	279	4.47	4.21	0.85
Safe and Orderly Instructional Environment	279	4.78	4.56	0.82
Research-based Instructional Strategies	279	4.21	4.01	0.59
Use of Data for Instructional Planning	279	4.17	3.98	0.55
Student-Centered Academic Environment	279	4.57	4.41	0.54
Communication with District and School Personnel	279	4.34	4.23	0.47
Assessment Feedback to Parents/Guardians	279	4.24	4.09	0.46
Summative Assessments	279	4.37	4.27	0.31
Diagnostic Assessments	279	4.10	4.02	0.21
Commitment to Professional Ethics	279	4.77	4.70	0.21
Formative Assessments	279	4.35	4.29	0.14
Content Specific State Standards	279	4.26	4.31	-0.24

Based on participants' responses to the online survey instrument the top five areas of greatest need are Use of Differentiated Instruction, Knowledge of Curriculum, Use of Available Resources for Instructional Planning, Assessment Feedback to Students, and Communication with Students. The five competencies of least need for professional development based on the MWDS results are Summative Assessments, Diagnostic Assessments, Commitment to Professional Ethics, Formative Assessments, and Content Specific State Standards.

Section Two: Demographic Group Variable Analysis

Experience Results

Research question two seeks to understand the perceived professional development needs of teachers of CTAE subjects relative to their perceived level of importance for the competencies prescribed by the Georgia Teacher Assessment of Performance Standards based on CTAE experience. Through the use of a MWDS calculator, data was disaggregated to identify the four experience demographic variables used in this study. Once disaggregated, the twenty competencies were ranked to identify the areas of greatest need. The analysis yielded quantitative data that can be used to provide CTAE directors, system administrators and professional development program directors with recommendations for customized program improvement for the specified demographic.

A variety of experience levels were represented by the respondents of the survey, ranging from zero years experience to more than 21 years of experience. Respondents reporting 0-5 years experience were categorized as Beginning teachers. Those with 6-10 years experience were categorized as Mid-career teachers. Those reporting with 11-20

years experience were categorized as Veteran teachers. Finally, respondents with over 21 years experience were categorized as Late-Career teachers. Early-Career teachers constituted the lowest reporting category was the mid career teachers with 43 respondents representing 15.41% of total population sample, while veteran teachers' constituted the highest recorded responses with 104, representing 37.28% of the population sample. Table 9 illustrates the descriptive statistics comparing the mean importance scores for each the twenty competencies.

Table 9

Comparison of Descriptive Statistics Across Experience Groups

Experience	*N*	Range	Minimum	Maximum	*M*	*SD*	Variance
All Experience	279	0.70	4.10	4.80	4.46	0.22	0.05
Beginning	60	0.75	4.07	4.82	4.50	0.22	0.05
Mid-career	43	0.95	3.79	4.74	4.25	0.31	0.10
Veteran	104	0.66	4.14	4.81	4.47	0.20	0.04
Late Career	72	0.65	4.18	4.83	4.55	0.21	0.05

The table above indicates the importance descriptive statistics of all experience variable groups. The Beginning experience level teachers responses indicate that that their mean perceived importance was the greatest in the demographic group. Beginning experience level teachers perceive that the competencies prescribed by Georgia TAPS are more important than the Mid-career, Veteran, and Late Career teachers of CTAE subjects. The least mean perceived importance is indicated by the responses from the Mid-career teachers. The variance and range was the greatest within the Mid-career teacher group, in addition to being the smallest demographic category for the experience variable.

Beginning Teachers

Table 10 represents the importance mean scores for the beginning teacher experience variable. The mean scores described in Table eight are ranked based on the competencies that the beginning teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 10

Importance Mean Scores for Beginning Teachers with 0–5 Years Experience

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Communication with Students	60	4.82
Commitment to Professional Ethics	60	4.80
Safe and Orderly Instructional Environment	60	4.75
Knowledge of Content Area	60	4.73
Student-Centered Academic Environment	60	4.70
Knowledge of Curriculum	60	4.65
Communication with Parents	60	4.62
Use of Available Resources for Instructional Planning	60	4.57
Assessment Feedback to Students	60	4.57
Use of Differentiated Instruction	60	4.55
Communication with District and School Personnel	60	4.48
Pedagogical Knowledge	60	4.45
Use Instructional Strategies to Facilitate Instruction	60	4.42
Summative Assessments	60	4.42
Formative Assessments	60	4.37
Assessment Feedback to Parents/Guardians	60	4.35
Research-based Instructional Strategies	60	4.27
Content Specific State Standards	60	4.25
Use of Data for Instructional Planning	60	4.13
Diagnostic Assessments	60	4.07

The mean importance scores above were all above the ranking of four on the survey instrument. The importance means ranged from 4.07 to 4.82. This indicates that the respondents perceived that all competencies measured have a high importance. Based on beginning teacher responses to the online survey instrument the top five areas of greatest importance are Communication with Students, Commitment to Professional

Ethics, Safe and Orderly Instructional Environment, Knowledge of Content Area, and Student-Centered Academic Environment. The six competencies of least importance according to respondents are Formative Assessment, Assessment Feedback to Parents/Guardians, Research-based Instructional Strategies, Content Specific State Standards, Use of Data for Instructional Planning, and Diagnostic Assessments.

Table 11 represents the competency mean scores for the beginning teacher variable. The mean scores described in Table 11 are ranked based on the competencies that the beginning teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 11

Competency Mean Score for Beginning Teachers with 0–5 Years Experience

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	60	4.63
Student-Centered Academic Environment	60	4.47
Communication with Students	60	4.45
Knowledge of Content Area	60	4.37
Safe and Orderly Instructional Environment	60	4.37
Knowledge of Curriculum	60	4.27
Communication with Parents	60	4.23
Content Specific State Standards	60	4.22
Assessment Feedback to Students	60	4.22
Summative Assessments	60	4.12
Formative Assessments	60	4.08
Communication with District and School Personnel	60	4.08
Use of Available Resources for Instructional Planning	60	4.02
Assessment Feedback to Parents/Guardians	60	4.02
Diagnostic Assessments	60	3.92
Pedagogical Knowledge	60	3.88
Use Instructional Strategies to Facilitate Instruction	60	3.87
Use of Data for Instructional Planning	60	3.77
Use of Differentiated Instruction	60	3.73
Research-based Instructional Strategies	60	3.72

The competency mean scores in the table above range from 3.72 to 4.63. The range of scores indicates that there may be discrepancies in the perception of competence in several categories. Based on beginning teacher responses to the online survey instrument the top five areas of greatest competence are Commitment to Professional Ethics, Student-Centered Academic Environment, Communication with Students, Knowledge of Content Area, and Safe and Orderly Instructional Environment. The six competencies with the least competence according to respondents are Diagnostic Assessments, Pedagogical Knowledge, Use of Instructional Strategies to Facilitate Instruction, Use of Data for Instructional Planning, Use of Differentiated Instruction, and Research-based Instructional Strategies.

Table 12 represents the MWDS for the beginning teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 12 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by beginning teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 12

MWDS Scores for Beginning CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Use of Differentiated Instruction	60	4.55	3.73	3.72
Pedagogical Knowledge	60	4.45	3.88	2.52
Use of Available Resources for Instructional Planning	60	4.57	4.02	2.51
Use Instructional Strategies to Facilitate Instruction	60	4.42	3.87	2.43
Research-based Instructional Strategies	60	4.27	3.72	2.35
Safe and Orderly Instructional Environment	60	4.75	4.37	1.82
Communication with District and School Personnel	60	4.48	4.08	1.79
Knowledge of Curriculum	60	4.65	4.27	1.78
Communication with Parents	60	4.62	4.23	1.77
Communication with Students	60	4.82	4.45	1.77
Knowledge of Content Area	60	4.73	4.37	1.74
Assessment Feedback to Students	60	4.57	4.22	1.60
Use of Data for Instructional Planning	60	4.13	3.77	1.52
Assessment Feedback to Parents/Guardians	60	4.35	4.02	1.45
Summative Assessments	60	4.42	4.12	1.33
Formative Assessments	60	4.37	4.08	1.24
Student-Centered Academic Environment	60	4.70	4.47	1.10
Commitment to Professional Ethics	60	4.80	4.63	0.80
Diagnostic Assessments	60	4.07	3.92	0.61
Content Specific State Standards	60	4.25	4.22	0.14

Based on beginning teachers' responses to the online survey instrument the top five areas of greatest need are Use of Differentiated Instruction, Pedagogical Knowledge, Use of Available Resources for Instructional Planning, Use of Instructional Strategies to Facilitate Instruction, and Research-based Instructional Strategies. The five competencies of least need for professional development based on the MWDS results are Formative Assessments, Student-Centered Academic Environment, Commitment to Professional Ethics, Diagnostic Assessments, and Content Specific State Standards.

Mid Career Teachers

Table 13 represents the importance mean scores for the mid-career teacher experience variable. The mean scores described in Table 13 are ranked based on the

competencies that the mid-career teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 13

Importance Mean Score for Mid Career Teachers with 6 - 10 Years Experience

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Safe and Orderly Instructional Environment	43	4.74
Communication with Students	43	4.72
Commitment to Professional Ethics	43	4.70
Knowledge of Content Area	43	4.63
Knowledge of Curriculum	43	4.56
Communication with Parents	43	4.49
Use of Available Resources for Instructional Planning	43	4.42
Pedagogical Knowledge	43	4.35
Assessment Feedback to Students	43	4.35
Use of Differentiated Instruction	43	4.23
Student-Centered Academic Environment	43	4.14
Summative Assessments	43	4.09
Use Instructional Strategies to Facilitate Instruction	43	4.07
Formative Assessments	43	4.07
Communication with District and School Personnel	43	4.07
Content Specific State Standards	43	4.02
Assessment Feedback to Parents/Guardians	43	3.93
Research-based Instructional Strategies	43	3.91
Use of Data for Instructional Planning	43	3.84
Diagnostic Assessments	43	3.79

The majority of mean scores for each competency were above a four, however there were four that were below. Teachers indicated that they have a perceived confidence in all but four categories. The range of the mean scores in the table above is 3.79 to 4.74. Based on mid-career teachers' responses to the online survey instrument the top five areas of greatest importance are Safe and Orderly Instructional Environment, Communication with Students, Commitment to Professional Ethics, Knowledge of Content Area, and Knowledge of Curriculum. The five competencies of least importance according to respondents are Content Specific State Standards, Assessment Feedback to

Parent/Guardians, Research-based Instructional Strategies, Use of Data for Instructional Planning, and Diagnostic Assessments.

Table 14 represents the competency mean scores for the mid-career teacher variable. The mean scores described in Table 14 are ranked based on the competencies that the mid-career teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 14

Competency Mean Score for Mid Career Teachers with 6 - 10 Years Experience

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	43	4.70
Safe and Orderly Instructional Environment	43	4.51
Knowledge of Content Area	43	4.40
Content Specific State Standards	43	4.37
Knowledge of Curriculum	43	4.28
Communication with Students	43	4.28
Student-Centered Academic Environment	43	4.19
Communication with Parents	43	4.19
Use of Available Resources for Instructional Planning	43	4.16
Formative Assessments	43	4.16
Assessment Feedback to Students	43	4.12
Summative Assessments	43	4.09
Pedagogical Knowledge	43	4.05
Use Instructional Strategies to Facilitate Instruction	43	4.02
Research-based Instructional Strategies	43	4.00
Use of Data for Instructional Planning	43	3.98
Communication with District and School Personnel	43	3.98
Assessment Feedback to Parents/Guardians	43	3.95
Diagnostic Assessments	43	3.86
Use of Differentiated Instruction	43	3.79

In the table above the range of the mean competency scores is 3.79 to 4.70. The scores indicate that teachers had a perceived confidence in each competency. However, there are four competencies that were below a four mean score. Additionally, the scores for the areas of least perceived competence were close in range, with two of the bottom

five having the exact same score. Based on mid-career teachers' responses to the online survey instrument the top six areas of greatest competence are Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Knowledge of Content Area, Content Specific State Standards, Communication with Students, and Knowledge of Curriculum. The five competencies with the least competence according to respondents are Research-Based Instructional Strategies, Use of Data for Instructional Planning, Communication with District and School Personnel, Assessment Feedback to Parents/Guardians, Diagnostic Assessments, and Use of Differentiated Instruction.

Table 15 represents the MWDS for the mid-career teachers of CTAE subjects that participated in the survey. The MWDS described in Table 15 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by beginning teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 15

MWDS Scores for Mid Career CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Communication with Students	43	4.72	4.28	2.09
Use of Differentiated Instruction	43	4.23	3.79	1.87
Communication with Parents	43	4.49	4.19	1.36
Pedagogical Knowledge	43	4.35	4.05	1.31
Knowledge of Curriculum	43	4.56	4.28	1.27
Use of Available Resources for Instructional Planning	43	4.42	4.16	1.13
Safe and Orderly Instructional Environment	43	4.74	4.51	1.10
Knowledge of Content Area	43	4.63	4.40	1.08
Assessment Feedback to Students	43	4.35	4.12	1.01
Communication with District and School Personnel	43	4.07	3.98	0.38
Use of Instructional Strategies to Facilitate Instruction	43	4.07	4.02	0.19
Summative Assessments	43	4.09	4.09	0.00
Commitment to Professional Ethics	43	4.70	4.70	0.00
Assessment Feedback to Parents/Guardians	43	3.93	3.95	-0.09
Student-Centered Academic Environment	43	4.14	4.19	-0.19
Diagnostic Assessments	43	3.79	3.86	-0.26
Research-based Instructional Strategies	43	3.91	4.00	-0.36
Formative Assessments	43	4.07	4.16	-0.38
Use of Data for Instructional Planning	43	3.84	3.98	-0.54

Based on mid-career teachers' responses to the online survey instrument the top five areas of greatest need are Based on mid-career teachers' responses to the online survey instrument the top five areas of greatest need are Communication with Students, Use of Differentiated Instruction, Communication with Parents, Pedagogical Knowledge, and Knowledge of Curriculum. The five competencies of least need for professional development based on the MWDS results are Diagnostic Assessments, Research-based Instructional Strategies, Formative Assessments, Use of Data for Instructional Planning, and Content Specific State Standards.

Veteran Teachers

Table 16 represents the importance mean scores for the veteran teacher experience variable. The mean scores described in Table 16 are ranked based on the

competencies that the veteran teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 16

Importance Mean Score for Veteran teachers of CTAE Subjects with 11-20 Years Experience

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Communication with Students	104	4.81
Safe and Orderly Instructional Environment	104	4.80
Commitment to Professional Ethics	104	4.76
Knowledge of Content Area	104	4.68
Student-Centered Academic Environment	104	4.62
Knowledge of Curriculum	104	4.61
Assessment Feedback to Students	104	4.61
Communication with Parents	104	4.57
Use of Available Resources for Instructional Planning	104	4.53
Pedagogical Knowledge	104	4.46
Use Instructional Strategies to Facilitate Instruction	104	4.45
Summative Assessments	104	4.38
Communication with District and School Personnel	104	4.37
Assessment Feedback to Parents/Guardians	104	4.35
Use of Differentiated Instruction	104	4.34
Formative Assessments	104	4.34
Use of Data for Instructional Planning	104	4.28
Content Specific State Standards	104	4.26
Research-based Instructional Strategies	104	4.21
Diagnostic Assessments	104	4.14

In the table above the mean scores had a range of 4.14 to 4.81. The size of the range indicates that there is little difference in perceived importance for this specific demographic variable category. All importance mean scores are above four. Based on veteran teachers' responses to the online survey instrument the top seven areas of greatest importance are Communication with Students, Safe and Orderly Instructional Environment, Commitment to Professional Ethics, Knowledge of Content Area, Student-Centered Academic Environment, Knowledge of Curriculum, and Assessment Feedback

to Students. The seven competencies of least importance according to respondents are Assessment Feedback to Parents/Guardians, Use of Differentiated Instruction, Formative Assessments, Use of Data for Instructional Planning, Content Specific State Standards, Research-based Instructional Strategies, and Diagnostic Assessments.

Table 17 represents the competency mean scores for the veteran teacher variable. The mean scores described in Table 17 are ranked based on the competencies that the veteran teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 17

Competency Mean Score for Veteran teachers of CTAE Subjects with 11-20 Years Experience

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	104	4.74
Safe and Orderly Instructional Environment	104	4.66
Communication with Students	104	4.63
Knowledge of Content Area	104	4.48
Knowledge of Curriculum	104	4.46
Communication with Parents	104	4.42
Student-Centered Academic Environment	104	4.41
Pedagogical Knowledge	104	4.38
Formative Assessments	104	4.38
Summative Assessments	104	4.37
Use of Available Resources for Instructional Planning	104	4.34
Communication with District and School Personnel	104	4.34
Assessment Feedback to Students	104	4.30
Content Specific State Standards	104	4.29
Use Instructional Strategies to Facilitate Instruction	104	4.23
Assessment Feedback to Parents/Guardians	104	4.23
Research-based Instructional Strategies	104	4.12
Diagnostic Assessments	104	4.08
Use of Data for Instructional Planning	104	4.06
Use of Differentiated Instruction	104	4.05

The table above mean scores ranged from 4.04 to 4.74. The mean scores of four and above indicate that the veteran teachers of CTAE subjects surveyed have a high perceived competence in each of the prescribed competencies. Based on veteran teachers' responses to the online survey instrument, the top five areas of greatest competence are Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Communication with Students, Knowledge of Content Area, and Knowledge of Curriculum. The six competencies with the least competence, according to respondents, are Assessment Feedback to Students, Assessment Feedback to Parents/Guardians, Research-based Instructional Strategies, Diagnostic Assessments, Use of Data for Instructional Planning, and Use of Differentiated Instruction.

Table 18 represents the MWDS for the veteran teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 18 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by beginning teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 18

MWDS Scores for Veteran CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance M	Competency M	MWDS
Assessment Feedback to Students	104	4.61	4.30	1.42
Use of Differentiated Instruction	104	4.34	4.05	1.25
Use Instructional Strategies to Facilitate Instruction	104	4.45	4.23	0.98
Use of Data for Instructional Planning	104	4.28	4.06	0.95
Knowledge of Content Area	104	4.68	4.48	0.95
Student-Centered Academic Environment	104	4.62	4.41	0.93
Communication with Students	104	4.81	4.63	0.88
Use of Available Resources for Instructional Planning	104	4.53	4.34	0.87
Knowledge of Curriculum	104	4.61	4.46	0.66
Communication with Parents	104	4.57	4.42	0.66
Safe and Orderly Instructional Environment	104	4.80	4.66	0.65
Assessment Feedback to Parents/Guardians	104	4.35	4.23	0.50
Research-based Instructional Strategies	104	4.21	4.12	0.40
Pedagogical Knowledge	104	4.46	4.38	0.34
Diagnostic Assessments	104	4.14	4.08	0.28
Communication with District and School Personnel	104	4.37	4.34	0.13
Commitment to Professional Ethics	104	4.76	4.74	0.09
Summative Assessments	104	4.38	4.37	0.04
Content Specific State Standards	104	4.26	4.29	-0.12
Formative Assessments	104	4.33	4.38	-0.21

Based on veteran teachers' responses to the online survey instrument the top six areas of greatest need are Assessment Feedback to Students, Use of Differentiated Instruction, Use Instructional Strategies to Facilitate Instruction, Use of Data for Instructional Planning, Knowledge of Content Area, and Student-Centered Academic Environment. The five competencies of least need for professional development based on the MWDS results are Communication with District and School Personnel, Commitment to Professional Ethics, Summative Assessments, Content Specific State Standards, and Formative Assessments.

Late Career Teachers

Table 19 represents the importance mean scores for the late career teacher experience variable. The mean scores described in Table 19 are ranked based on the competencies that the veteran teachers who participated in the study that have the greatest importance to the least importance.

Table 19

Importance Mean Score for Late Career teachers of CTAE Subjects with 21 or more Years Experience

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Knowledge of Content Area	72	4.83
Safe and Orderly Instructional Environment	72	4.82
Communication with Students	72	4.82
Commitment to Professional Ethics	72	4.81
Knowledge of Curriculum	72	4.79
Use of Available Resources for Instructional Planning	72	4.74
Student-Centered Academic Environment	72	4.64
Assessment Feedback to Students	72	4.63
Communication with Parents	72	4.60
Pedagogical Knowledge	72	4.58
Formative Assessments	72	4.53
Summative Assessments	72	4.47
Use of Differentiated Instruction	72	4.46
Use Instructional Strategies to Facilitate Instruction	72	4.43
Content Specific State Standards	72	4.42
Research-based Instructional Strategies	72	4.33
Communication with District and School Personnel	72	4.33
Diagnostic Assessments	72	4.26
Use of Data for Instructional Planning	72	4.25
Assessment Feedback to Parents/Guardians	72	4.18

The table above has a range of 4.18 to 4.83. The late career teacher of CTAE subjects survey responses indicates that the entire demographic category places perceived importance on all of the prescribed competencies. Based on late career teachers' responses to the online survey instrument the top five areas of greatest importance are

Knowledge of Content Area, Safe and Orderly Instructional Environment, Communication with Students, Commitment to Professional Ethics, and Knowledge of Curriculum. The five competencies of least importance according to respondents are Research-based Instructional Strategies, Communication with District and School Personnel, Diagnostic Assessments, Use of Data for Instructional Planning, and Assessment Feedback to Parents/Guardians.

Table 20 represents the competency mean scores for the late career teacher variable. The mean scores described in Table 20 are ranked based on the competencies that the late career teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 20

Competency Mean Score for Late Career teachers of CTAE Subjects with 21 or more Years Experience

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	72	4.71
Safe and Orderly Instructional Environment	72	4.60
Communication with Students	72	4.58
Knowledge of Content Area	72	4.57
Knowledge of Curriculum	72	4.51
Student-Centered Academic Environment	72	4.49
Communication with Parents	72	4.43
Formative Assessments	72	4.40
Content Specific State Standards	72	4.39
Communication with District and School Personnel	72	4.36
Summative Assessments	72	4.35
Use of Available Resources for Instructional Planning	72	4.33
Pedagogical Knowledge	72	4.32
Assessment Feedback to Students	72	4.28
Use Instructional Strategies to Facilitate Instruction	72	4.18
Research-based Instructional Strategies	72	4.11
Diagnostic Assessments	72	4.11
Use of Differentiated Instruction	72	4.10
Use of Data for Instructional Planning	72	4.04
Assessment Feedback to Parents/Guardians	72	4.03

The table above indicates the perceived competence level that late career teachers have as it relates to the prescribed competencies. The table indicates that they have a perceived high competence level. Based on late career teachers' responses to the online survey instrument the top five areas of greatest competence are Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Communication with Students, Knowledge of Content Area, and Knowledge of Curriculum. The five competencies with the least competence according to respondents are Research-based

Instructional Strategies, Diagnostic Assessments, Use of Differentiated Instruction, Use of Data for Instructional Planning, and Assessment Feedback to Parents/Guardians.

Table 21 represents the MWDS for the late career teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 21 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by late career teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 21

MWDS Scores for Late Career CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Use of Available Resources for Instructional Planning	72	4.74	4.33	1.91
Use of Differentiated Instruction	72	4.46	4.10	1.61
Assessment Feedback to Students	72	4.63	4.28	1.61
Knowledge of Curriculum	72	4.79	4.51	1.33
Knowledge of Content Area	72	4.83	4.57	1.28
Pedagogical Knowledge	72	4.58	4.32	1.21
Communication with Students	72	4.82	4.58	1.14
Use Instructional Strategies to Facilitate Instruction	72	4.43	4.18	1.11
Safe and Orderly Instructional Environment	72	4.82	4.60	1.07
Research-based Instructional Strategies	72	4.33	4.11	0.96
Use of Data for Instructional Planning	72	4.25	4.04	0.89
Communication with Parents	72	4.60	4.43	0.77
Student-Centered Academic Environment	72	4.64	4.49	0.71
Diagnostic Assessments	72	4.26	4.11	0.65
Assessment Feedback to Parents/Guardians	72	4.18	4.03	0.64
Formative Assessments	72	4.53	4.40	0.57
Summative Assessments	72	4.47	4.35	0.56
Commitment to Professional Ethics	72	4.81	4.71	0.47
Content Specific State Standards	72	4.42	4.39	0.12
Communication with District and School Personnel	72	4.33	4.36	-0.12

Based on late career teachers' responses to the online survey instrument the top five areas of greatest need are Use of Available Resources for Instructional Planning, Use

of Differentiated Instruction, Assessment Feedback to Students, Knowledge of Curriculum, and Knowledge of Content Area. The five competencies of least need for professional development based on the MWDS results are Formative Assessments, Summative Assessments, Commitment to Professional Ethics, content Specific State Standards, Communication with District and School Personnel.

Table 22

Comparison of Top MWDS Scores Between All Experience Demographic Variable Categories

Experience Level	*n*	Importance *M*	Competency *M*	MWDS
Beginning				
Use of Differentiated Instruction	60	4.55	3.73	3.72
Pedagogical Knowledge	60	4.45	3.88	2.52
Use of Available Resources for Instructional Planning	60	4.57	4.02	2.51
Mid Career	*n*	IMP Mean	COM Mean	MWDS
Communication with Students	43	4.72	4.28	2.09
Use of Differentiated Instruction	43	4.23	3.79	1.87
Communication with Parents	43	4.49	4.19	1.36
Pedagogical Knowledge	43	4.35	4.05	1.31
Veteran	*n*	IMP Mean	COM Mean	MWDS
Assessment Feedback to Students	104	4.61	4.30	1.42
Use of Differentiated Instruction	104	4.34	4.05	1.25
Late Career	*n*	IMP Mean	COM Mean	MWDS
Use of Available Resources for Instructional Planning	72	4.74	4.33	1.91
Use of Differentiated Instruction	72	4.46	4.10	1.61
Assessment Feedback to Students	72	4.63	4.28	1.61

In the table above, across all of the demographic groups, Use of Differentiated Instruction was the only competency prescribed by Georgia TAPS that is in the areas of greatest need. Veteran and Late Career teachers indicate a top need in Use of Available Resources for Instructional Planning. The table also indicates that the Mid Career

teachers' needs are related to communication and Pedagogical Knowledge. Two of the Mid Career CTAE teachers areas of greatest need are Communication with Students and Communication with Parents. The highest MWDS is 3.72 with Beginning teachers and the Use of Differentiated Instruction. Lastly, Use of Differentiated Instruction was a top area of need for indicated across all the categories within Experience demographic variable categories.

School Type Results

Research question three seeks to understand the perceived professional development topic needs for teachers of CTAE subjects relative to their perceived level of importance for the competencies prescribed by the Georgia Teacher Assessment of Performance Standards based on school type. Specifically, research question three identifies and prioritizes professional development topics for teachers of CTAE subjects that teach in Comprehensive High Schools, Career Academies, Middle Schools, and General High Schools. Through the use of a MWDS calculator, data was disaggregated to identify the four demographic variables used for this research question. Once disaggregated, the twenty competencies were ranked to identify the areas of greatest need. The analysis yielded quantitative data that can be used to provide CTAE directors, system administrators, and professional development program directors with recommendations for customized program improvement for each specified demographic.

The school type of teachers of CTAE subjects varied between demographic subgroups. The school types demographic variables included Comprehensive High Schools, Career Academies, Middle Schools and general High Schools. The demographic variable with the highest number of participants was the Comprehensive

High School teachers of CTAE subjects with 140 respondents. This accounted for more than half of the total respondents in the School Type category (50.18%). The category with the lowest number of respondents was the Career Academy category with a total of 16 respondents (5.73%). The number of respondents from each school type important aspect of this research study's generalizability. Table 23 represents the descriptive statistics comparing the mean importance scores for each the twenty competencies.

Table 23

Comparison of Descriptive Statistics Across School Type

School Type	*N*	Range	Minimum	Maximum	*M*	*SD*	Variance
All Participants	279	0.70	4.10	4.80	4.46	0.22	0.05
Comprehensive High School	140	0.84	4.03	4.87	4.47	0.26	0.07
Career Academy	16	0.88	3.88	4.75	4.30	0.23	0.05
Middle School	61	0.64	4.08	4.72	4.40	0.19	0.04
High School	62	0.52	4.29	4.81	4.57	0.16	0.03

The table above indicates the descriptive statistics of the mean importance scores across the school type. The greatest perceived mean importance score is indicated within the High School teachers of CTAE subject's category. The High School setting teachers of CTAE subjects indicated that they perceived that the competencies prescribed by Georgia TAPS are more important that the Comprehensive High School, Career Academy, and Middle School setting teachers of CTAE subjects. Table 23 indicates that the Career Academy setting teachers have the least perceive importance for the competencies prescribed by Georgia TAPS.

Comprehensive Secondary Setting

Table 24 represents the importance mean scores for the comprehensive secondary school setting variable. The mean scores described in Table 24 are ranked based on the

competencies that the comprehensive high school setting teachers of CTAE subjects selected within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 24

Importance Mean Score for Comprehensive Secondary School teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Communication with Students	140	4.87
Commitment to Professional Ethics	140	4.84
Safe and Orderly Instructional Environment	140	4.83
Knowledge of Content Area	140	4.78
Knowledge of Curriculum	140	4.71
Use of Available Resources for Instructional Planning	140	4.62
Student-Centered Academic Environment	140	4.59
Communication with Parents	140	4.59
Assessment Feedback to Students	140	4.56
Pedagogical Knowledge	140	4.44
Use of Differentiated Instruction	140	4.39
Summative Assessments	140	4.36
Formative Assessments	140	4.36
Use Instructional Strategies to Facilitate Instruction	140	4.35
Communication with District and School Personnel	140	4.34
Content Specific State Standards	140	4.26
Assessment Feedback to Parents/Guardians	140	4.16
Research-based Instructional Strategies	140	4.14
Use of Data for Instructional Planning	140	4.11
Diagnostic Assessments	140	4.03

The table above indicates that the teachers of CTAE subjects in comprehensive high school setting have the perception that all survey items are importance. This is based on their means exceeding four for every category. The range of respondents importance mean was 4.03 to 4.87. Based on comprehensive secondary setting teachers' responses to the online survey instrument the top five areas of greatest importance are

Communication with Students, Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Knowledge of Content Area, and Knowledge of Curriculum. The five competencies of least importance according to respondents are Content Specific State Standards, Assessment Feedback to Parents/Guardians, Research-based Instructional Strategies, Use of Data for Instructional Planning, and Diagnostic Assessments.

Table 25 represents the competency mean scores for the comprehensive secondary setting teacher variable. The mean scores described in Table 25 are ranked based on the competencies that the comprehensive secondary setting teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 25

Competency Mean Score for Comprehensive Secondary School teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	140	4.75
Communication with Students	140	4.59
Safe and Orderly Instructional Environment	140	4.57
Knowledge of Content Area	140	4.51
Knowledge of Curriculum	140	4.41
Student-Centered Academic Environment	140	4.40
Communication with Parents	140	4.38
Content Specific State Standards	140	4.32
Formative Assessments	140	4.28
Summative Assessments	140	4.27
Communication with District and School Personnel	140	4.25
Assessment Feedback to Students	140	4.22
Use of Available Resources for Instructional Planning	140	4.17
Pedagogical Knowledge	140	4.14
Use Instructional Strategies to Facilitate Instruction	140	4.08
Assessment Feedback to Parents/Guardians	140	4.07
Diagnostic Assessments	140	4.01
Research-based Instructional Strategies	140	3.95
Use of Differentiated Instruction	140	3.94
Use of Data for Instructional Planning	140	3.86

Table 25 indicates that teachers in comprehensive settings have a high-perceived competence in the prescribed competencies. The range of their responses is 3.86 to 4.75. Based on comprehensive secondary setting teachers' responses to the online survey instrument the top five areas of greatest competence are Commitment to Professional Ethics, Communication with Students, Safe and Orderly Instructional Environment, Knowledge of Content Area, and Knowledge of Curriculum. The five competencies with the least competence according to respondents are Assessment Feedback to

Parents/Guardians, Diagnostic Assessments, Research-based Instructional Strategies, Use of Differentiated Instruction, and Use of Data for Instructional Planning.

Table 26 represents the MWDS for the comprehensive secondary setting teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 26 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by late career teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 26

MWDS Scores for Comprehensive Secondary Setting CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Use of Available Resources for Instructional Planning	140	4.62	4.17	2.08
Use of Differentiated Instruction	140	4.39	3.94	2.01
Assessment Feedback to Students	140	4.56	4.22	1.56
Knowledge of Curriculum	140	4.71	4.41	1.41
Communication with Students	140	4.87	4.59	1.36
Pedagogical Knowledge	140	4.44	4.14	1.33
Knowledge of Content Area	140	4.78	4.51	1.30
Safe and Orderly Instructional Environment	140	4.83	4.57	1.24
Use Instructional Strategies to Facilitate Instruction	140	4.35	4.08	1.18
Use of Data for Instructional Planning	140	4.11	3.86	1.00
Communication with Parents	140	4.59	4.38	0.95
Student-Centered Academic Environment	140	4.59	4.40	0.85
Research-based Instructional Strategies	140	4.14	3.95	0.77
Commitment to Professional Ethics	140	4.84	4.75	0.41
Summative Assessments	140	4.36	4.27	0.41
Communication with District and School Personnel	140	4.34	4.25	0.37
Assessment Feedback to Parents/Guardians	140	4.16	4.07	0.36
Formative Assessments	140	4.36	4.28	0.34
Diagnostic Assessments	140	4.03	4.01	0.09
Content Specific State Standards	140	4.26	4.32	-0.27

Based on the comprehensive secondary setting teachers' responses to the online survey instrument the top five areas of greatest need are Use of Available Resources for Instructional Planning, Use of Differentiated Instruction, Assessment Feedback to Students, Knowledge of Curriculum, and Communication with Students. The five competencies of least need for professional development based on the MWDS results are Communication with District and School Personnel, Assessment Feedback to Parents/Guardians, Formative Assessments, Diagnostic Assessments, and Content Specific State Standards.

Career Academy

Table 27 represents the importance mean scores for the career academy setting variable. The mean scores described in Table 27 are ranked based on the competencies that the career academy teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 27

Importance Mean Score for Career Academy teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Knowledge of Curriculum	16	4.75
Safe and Orderly Instructional Environment	16	4.63
Pedagogical Knowledge	16	4.56
Communication with Students	16	4.56
Knowledge of Content Area	16	4.50
Communication with Parents	16	4.50
Commitment to Professional Ethics	16	4.44
Use Instructional Strategies to Facilitate Instruction	16	4.38
Communication with District and School Personnel	16	4.31
Use of Available Resources for Instructional Planning	16	4.25
Assessment Feedback to Students	16	4.25
Student-Centered Academic Environment	16	4.25
Use of Differentiated Instruction	16	4.19
Content Specific State Standards	16	4.13
Formative Assessments	16	4.13
Summative Assessments	16	4.13
Assessment Feedback to Parents/Guardians	16	4.13
Use of Data for Instructional Planning	16	4.06
Research-based Instructional Strategies	16	4.00
Diagnostic Assessments	16	3.88

The teachers of CTAE subjects in career academy setting have a high perception of the importance of each of the prescribed competencies. The range of their mean responses is 3.88 to 4.75. Based on career academy setting teachers' responses to the online survey instrument the top five areas of greatest importance are Knowledge of Curriculum, Safe and Orderly Instructional Environment, Pedagogical Knowledge, Communication with Students, and Knowledge of Content Area. The five competencies of least importance according to respondents are Summative Assessments, Assessment

Feedback to Parents/Guardians, Use of Data for Instructional Planning, Research-based Instructional Strategies, and Diagnostic Assessments.

Table 28 represents the competency mean scores for the career academy setting teacher variable. The mean scores described in Table 28 are ranked based on the competencies that the career academy setting teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 28

Competency Mean Score for Career Academy teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Safe and Orderly Instructional Environment	16	4.25
Commitment to Professional Ethics	16	4.25
Use of Available Resources for Instructional Planning	16	4.19
Assessment Feedback to Students	16	4.19
Knowledge of Curriculum	16	4.13
Use of Data for Instructional Planning	16	4.13
Assessment Feedback to Parents/Guardians	16	4.13
Knowledge of Content Area	16	4.06
Pedagogical Knowledge	16	4.06
Formative Assessments	16	4.06
Content Specific State Standards	16	4.00
Communication with Parents	16	4.00
Student-Centered Academic Environment	16	3.94
Summative Assessments	16	3.88
Communication with Students	16	3.88
Communication with District and School Personnel	16	3.88
Use Instructional Strategies to Facilitate Instruction	16	3.75
Research-based Instructional Strategies	16	3.63
Diagnostic Assessments	16	3.56
Use of Differentiated Instruction	16	3.44

The table above indicates that the range of the competency mean scores of the career academy teachers varied from 3.44 to 4.24. Based on career academy setting

teachers' responses to the online survey instrument the top five areas of greatest competence are Safe and Orderly Instructional Environment, Commitment to Professional Ethics, Use of Available Resources for Instructional Planning, Assessment Feedback to Students, and Knowledge of Curriculum. The five competencies with the least competence according to respondents are Communication with District and School Personnel, Use Instructional Strategies to Facilitate Instruction, Research-based Instructional Strategies, Diagnostic Assessments, and Use of Differentiated Instruction.

Table 29 represents the MWDS for the career academy setting teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 29 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by career academy setting teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 29

MWDS Scores for Career Academy CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Use of Differentiated Instruction	16	4.19	3.44	3.14
Communication with Students	16	4.56	3.88	3.14
Knowledge of Curriculum	16	4.75	4.13	2.97
Use Instructional Strategies to Facilitate Instruction	16	4.38	3.75	2.73
Pedagogical Knowledge	16	4.56	4.06	2.28
Communication with Parents	16	4.50	4.00	2.25
Knowledge of Content Area	16	4.50	4.06	1.97
Communication with District and School Personnel	16	4.31	3.88	1.89
Safe and Orderly Instructional Environment	16	4.63	4.25	1.73
Research-based Instructional Strategies	16	4.00	3.63	1.50
Student-Centered Academic Environment	16	4.25	3.94	1.33
Diagnostic Assessments	16	3.88	3.56	1.21
Summative Assessments	16	4.13	3.88	1.03
Commitment to Professional Ethics	16	4.44	4.25	0.83
Content Specific State Standards	16	4.13	4.00	0.52
Use of Available Resources for Instructional Planning	16	4.25	4.19	0.27
Assessment Feedback to Students	16	4.25	4.19	0.27
Content Specific State Standards	16	4.13	4.00	0.26
Summative Assessments	16	4.13	3.88	0.00
Use of Data for Instructional Planning	16	4.06	4.13	-0.25

Based on the career academy setting teachers' responses to the online survey instrument the top five areas of greatest need are Use of Differentiated Instruction, Communication with Students, Knowledge of Curriculum, Use of Instructional Strategies to Facilitate Instruction, and Pedagogical Knowledge. The five competencies of least need for professional development based on the MWDS results are Use of Available Resources for Instructional Planning, Assessment Feedback to Students, Formative Assessments, Assessment Feedback to Parents/Guardians, and Use of Data for Instructional Planning.

Middle School Setting

Table 30 represents the importance mean scores for the middle school setting variable. The mean scores described in Table 30 are ranked based on the competencies that the middle school setting teachers of CTAE subjects selected within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 30

Importance Mean Score for Middle School teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Safe and Orderly Instructional Environment	61	4.72
Communication with Students	61	4.70
Commitment to Professional Ethics	61	4.67
Knowledge of Content Area	61	4.57
Communication with Parents	61	4.57
Assessment Feedback to Students	61	4.56
Use of Available Resources for Instructional Planning	61	4.49
Student-Centered Academic Environment	61	4.49
Pedagogical Knowledge	61	4.44
Knowledge of Curriculum	61	4.43
Use of Differentiated Instruction	61	4.36
Use Instructional Strategies to Facilitate Instruction	61	4.33
Communication with District and School Personnel	61	4.33
Summative Assessments	61	4.31
Formative Assessments	61	4.30
Assessment Feedback to Parents/Guardians	61	4.26
Research-based Instructional Strategies	61	4.23
Diagnostic Assessments	61	4.15
Use of Data for Instructional Planning	61	4.10
Content Specific State Standards	61	4.08

The table above indicates there was a range of 4.08 to 4.72 in the importance mean scores for teachers of CTAE subjects that work in middle school settings. The mean scores above four indicate that this demographic variable category place a high

perceived importance on the prescribed competencies. Based on the middle school setting teachers' responses to the online survey instrument the top five areas of greatest importance are Safe and Orderly Instructional Environment, Communication with Students, Commitment to Professional Ethics, Knowledge of Content Area, and Communication with Parents. The five competencies of least importance according to respondents are Assessment Feedback to Parents/Guardians, Research-based Instructional Strategies, Diagnostic Assessments, Use of Data for Instructional Planning, and Content Specific State Standards.

Table 31 represents the competency mean scores for the middle school setting teacher variable. The mean scores described in Table 31 are ranked based on the competencies that the middle school setting teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 31

Competency Mean Scores for Middle School teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	61	4.64
Safe and Orderly Instructional Environment	61	4.51
Student-Centered Academic Environment	61	4.46
Communication with Students	61	4.43
Knowledge of Content Area	61	4.41
Knowledge of Curriculum	61	4.34
Formative Assessments	61	4.31
Assessment Feedback to Students	61	4.28
Summative Assessments	61	4.25
Pedagogical Knowledge	61	4.23
Use of Available Resources for Instructional Planning	61	4.21
Communication with Parents	61	4.21
Content Specific State Standards	61	4.18
Communication with District and School Personnel	61	4.18
Assessment Feedback to Parents/Guardians	61	4.10
Use Instructional Strategies to Facilitate Instruction	61	4.07
Diagnostic Assessments	61	4.05
Research-based Instructional Strategies	61	4.03
Use of Data for Instructional Planning	61	3.98
Use of Differentiated Instruction	61	3.90

The table above indicates that there was a range of 3.90 to 4.64 in the perceived competency means for middle school teachers of CTAE subjects. The scores on the table indicate a high-perceived mean competence. Based on middle school setting teachers' responses to the online survey instrument the top five areas of greatest competence are Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Student-Centered Academic Environment, Communication with Students, and Knowledge of Content Area. The five competencies with the least competence according to respondents are Use Instructional Strategies to Facilitate Instruction, Diagnostic

Assessments, Research-based Instructional Strategies, Use of Data for Instructional Planning, and Use of Differentiated Instruction.

Table 32 represents the MWDS for the middle school setting teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 32 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by middle school setting teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 32

MWDS Scores for Middle School CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Use of Differentiated Instruction	61	4.36	3.90	2.00
Communication with Parents	61	4.57	4.21	1.65
Communication with Students	61	4.70	4.43	1.31
Assessment Feedback to Students	61	4.56	4.28	1.27
Use of Available Resources for Instructional Planning	61	4.49	4.21	1.25
Use Instructional Strategies to Facilitate Instruction	61	4.33	4.07	1.14
Safe and Orderly Instructional Environment	61	4.72	4.51	1.01
Pedagogical Knowledge	61	4.44	4.23	0.95
Research-based Instructional Strategies	61	4.23	4.03	0.83
Knowledge of Content Area	61	4.57	4.41	0.75
Assessment Feedback to Parents/Guardians	61	4.26	4.10	0.70
Communication with District and School Personnel	61	4.33	4.18	0.64
Use of Data for Instructional Planning	61	4.10	3.98	0.47
Diagnostic Assessments	61	4.15	4.05	0.41
Knowledge of Curriculum	61	4.43	4.34	0.36
Summative Assessments	61	4.31	4.25	0.28
Commitment to Professional Ethics	61	4.67	4.64	0.15
Student-Centered Academic Environment	61	4.49	4.46	0.15
Formative Assessments	61	4.30	4.31	-0.07
Content Specific State Standards	61	4.08	4.18	-0.40

Based on the middle school setting teachers' responses to the online survey instrument, the top five areas of greatest need are Use of Differentiated Instruction, Communication with Parents, Communication with Students, Assessment Feedback to Students, and Use of Available Resources for Instructional Planning. The five competencies of least need for professional development based on the MWDS results are Summative Assessments, Commitment to Professional Ethics, Student-Centered Academic Environment, Formative Assessments, and Content Specific State Standards.

High School Setting

Table 33 represents the importance mean scores for the high school setting variable. The mean scores described in Table 33 are ranked based on the competencies that the high school setting teachers of CTAE subjects selected within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 33

Importance Mean Score for High School teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Knowledge of Content Area	62	4.81
Commitment to Professional Ethics	62	4.81
Safe and Orderly Instructional Environment	62	4.79
Communication with Students	62	4.79
Knowledge of Curriculum	62	4.74
Student-Centered Academic Environment	62	4.68
Assessment Feedback to Students	62	4.65
Use of Available Resources for Instructional Planning	62	4.63
Communication with Parents	62	4.56
Pedagogical Knowledge	62	4.55
Use Instructional Strategies to Facilitate Instruction	62	4.50
Use of Differentiated Instruction	62	4.50
Content Specific State Standards	62	4.48
Summative Assessments	62	4.48
Formative Assessments	62	4.44
Assessment Feedback to Parents/Guardians	62	4.44
Use of Data for Instructional Planning	62	4.42
Research-based Instructional Strategies	62	4.40
Communication with District and School Personnel	62	4.35
Diagnostic Assessments	62	4.29

The table above indicates that high school teachers within the population sample place a very high perceived importance on the competencies. Each importance mean score was above 4.29. Based on the high school setting teachers' responses to the online survey instrument the top five areas of greatest importance are Knowledge of Content Area, Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Communication with Students, and Knowledge of Curriculum. The five competencies of least importance according to respondents are Assessment Feedback to Parents/Guardians, Use of Data for Instructional Planning, Research-based Instructional

Strategies, Communication with District and School Personnel, and Diagnostic Assessments.

Table 34 represents the competency mean scores for the high school setting teacher variable. The mean scores described in Table 34 are ranked based on the competencies that the high school setting teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 34

Competency Mean Score for High School teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	62	4.77
Safe and Orderly Instructional Environment	62	4.66
Communication with Students	62	4.63
Knowledge of Curriculum	62	4.53
Knowledge of Content Area	62	4.53
Content Specific State Standards	62	4.50
Student-Centered Academic Environment	62	4.50
Communication with Parents	62	4.50
Use of Available Resources for Instructional Planning	62	4.44
Pedagogical Knowledge	62	4.37
Summative Assessments	62	4.37
Formative Assessments	62	4.34
Communication with District and School Personnel	62	4.34
Use Instructional Strategies to Facilitate Instruction	62	4.31
Assessment Feedback to Students	62	4.29
Research-based Instructional Strategies	62	4.23
Use of Data for Instructional Planning	62	4.19
Use of Differentiated Instruction	62	4.18
Diagnostic Assessments	62	4.13
Assessment Feedback to Parents/Guardians	62	4.11

Thee table above reveals a range of 4.11 to 4.77. Although the variance is not vast, the table indicates that there was a high competence in the selected survey items.

Based on high school setting teachers' responses to the online survey instrument, the top five areas of greatest competence are Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Communication with Students, Knowledge of Curriculum, and Knowledge of Content Area. The five competencies with the least competence according to respondents are Research-based Instructional Strategies, Use of Data for Instructional Planning, Use of Differentiated Instruction, Diagnostic Assessments, and Assessment Feedback to Parents/Guardians.

Table 35 represents the MWDS for the high school setting teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 35 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by high school setting teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 35

MWDS Scores for High School CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Assessment Feedback to Students	62	4.65	4.29	1.65
Use of Differentiated Instruction	62	4.50	4.18	1.45
Assessment Feedback to Parents/Guardians	62	4.44	4.11	1.43
Knowledge of Content Area	62	4.81	4.53	1.32
Use of Data for Instructional Planning	62	4.42	4.19	1.00
Knowledge of Curriculum	62	4.74	4.53	0.99
Use of Available Resources for Instructional Planning	62	4.63	4.44	0.90
Use Instructional Strategies to Facilitate Instruction	62	4.50	4.31	0.87
Student-Centered Academic Environment	62	4.68	4.50	0.83
Pedagogical Knowledge	62	4.55	4.37	0.81
Research-based Instructional Strategies	62	4.40	4.23	0.78
Communication with Students	62	4.79	4.63	0.77
Diagnostic Assessments	62	4.29	4.13	0.69
Safe and Orderly Instructional Environment	62	4.79	4.66	0.62
Summative Assessments	62	4.48	4.37	0.51
Formative Assessments	62	4.44	4.34	0.43
Communication with Parents	62	4.56	4.50	0.29
Commitment to Professional Ethics	62	4.81	4.77	0.16
Communication with District and School Personnel	62	4.35	4.34	0.07
Content Specific State Standards	62	4.48	4.50	-0.07

Based on the high school setting teachers' responses to the online survey instrument, the top five areas of greatest need are Assessment Feedback to Students, Use of Differentiated Instruction, Assessment Feedback to Parents/Guardians, Knowledge of Content Area, and Use of Data for Instructional Planning. The five competencies of least need for professional development based on the MWDS results are Formative Assessments, Communication with Parents, Commitment to Professional Ethics, Communication with District and School Personnel, and Content Specific State Standards.

Table 36

Comparison of Top MWDS Scores Between All School Type Demographic Variable Categories

School Type	*n*	Importance *M*	Competency *M*	MWDS
Comprehensive Secondary Settings				
Use of Available Resources for Instructional Planning	140	4.62	4.17	2.08
Use of Differentiated Instruction	140	4.39	3.94	2.01
Career Academy				
Use of Differentiated Instruction	16	4.19	3.44	3.14
Communication with Students	16	4.56	3.88	3.14
Knowledge of Curriculum	16	4.75	4.13	2.97
Middle School				
Use of Differentiated Instruction	61	4.36	3.90	2.00
Communication with Parents	61	4.57	4.21	1.65
Communication with Students	61	4.70	4.43	1.31
Assessment Feedback to Students	61	4.56	4.28	1.27
Use of Available Resources for Instructional Planning	61	4.49	4.21	1.25
High School				
Assessment Feedback to Students	62	4.65	4.29	1.65
Use of Differentiated Instruction	62	4.50	4.18	1.45
Assessment Feedback to Parents/Guardians	62	4.44	4.11	1.43
Knowledge of Content Area	62	4.81	4.53	1.32

The table above is a comparison of the top MWDS, thus indicating the areas of greatest professional development need. Table 36 compares the all school type demographic variables. Comprehensive Secondary, Career Academy, Middle School, and High Schools teachers of CTAE subjects are represented within Table 36. Use of Differentiated Instruction was an area of need in the top three MWDS for each of the demographic variable categories. Student related competencies are also indicated to be an area of need in each category. The Middle School category indicated that communication was an area of need because both, Communication with Parents and

Communication with Students is indicated within the top three areas of greatest need. The highest MWDS score is with the Career Academy demographic category variable with both Use of Differentiated Instruction and Communication with Students at 3.14. The greatest number of respondents in all categories, across all respondents is with the Comprehensive High School setting teachers at 140 ($N = 140$). This demographic group's area of greatest need is in the Use of Available Resources for Instructional Planning.

School Population Results

Research question four seeks to understand the perceived professional development topic needs for teachers of CTAE subjects relative to their perceived level of importance for the competencies prescribed by the Georgia Teacher Assessment of Performance Standards based on school population size. Specifically, research question three identifies and prioritizes professional development topics for teachers of CTAE subjects that teach in Small, Medium, and Large school population settings. Through the use of a MWDS calculator, data was disaggregated to identify the three demographic variables used for this research question. Once disaggregated, the twenty competencies were ranked to identify the areas of greatest need. The analysis yielded quantitative data that can be used to provide CTAE directors, system administrators, and professional development program directors with recommendations for customized program improvement for the specified demographic.

The school size of respondents varied from small to large school settings. Respondents who self-reported that their respective school had a population of 799 or fewer students were categorized as teachers at small schools. Respondents who self-

reported that their respective school had a population between 800 and 1399 students were categorized as teachers at medium schools. Respondents who self-reported that their respected school had a population of 1400 or more students were categorized as teachers at large schools. The lowest reporting category was the small school population teachers with 45 respondents representing 16.13% of total population sample, while Large school population teachers' response rate was the highest at 128 representing 45.87% of the population sample. Table 35 represents the descriptive statistics comparing the mean importance scores for each demographic category for each school student population size.

Table 37

Comparison of Descriptive Statistics Across School Population

School Population	*N*	Range	Minimum	Maximum	*M*	*SD*	Variance
All Participants	279	0.70	4.10	4.80	4.46	0.22	0.05
Small	45	0.51	4.16	4.67	4.41	0.16	0.03
Medium	106	0.67	4.15	4.80	4.47	0.22	0.05
Large	128	0.80	4.05	4.84	4.48	0.24	0.06

The table above indicates the descriptive statistics of the mean importance scores across the school population category. The greatest perceived mean importance score is indicated within the Medium Population teachers of CTAE subject's category. The table above indicates the perceived importance mean across all categories within the school population variable are more similar than the experience and school type variables. The least perceived importance means is indicated in the Small population settings.

Small School Setting

Table 38 represents the importance mean scores for the small school setting variable. The mean scores described in Table 38 are ranked based on the competencies

that the small school setting teachers of CTAE subjects selected within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 38

Importance Mean Score for Small School Setting teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Safe and Orderly Instructional Environment	45	4.67
Knowledge of Content Area	45	4.64
Communication with Students	45	4.64
Commitment to Professional Ethics	45	4.62
Knowledge of Curriculum	45	4.53
Use of Available Resources for Instructional Planning	45	4.51
Use Instructional Strategies to Facilitate Instruction	45	4.47
Student-Centered Academic Environment	45	4.47
Use of Differentiated Instruction	45	4.44
Assessment Feedback to Students	45	4.44
Communication with Parents	45	4.44
Pedagogical Knowledge	45	4.38
Assessment Feedback to Parents/Guardians	45	4.31
Communication with District and School Personnel	45	4.31
Formative Assessments	45	4.29
Summative Assessments	45	4.29
Research-based Instructional Strategies	45	4.22
Use of Data for Instructional Planning	45	4.20
Content Specific State Standards	45	4.18
Diagnostic Assessments	45	4.16

The table above indicates that there is a range of 4.16 to 4.67 for the importance mean score. Small school setting teachers place a high-perceived importance on the competencies prescribed by Georgia TAPS. Based on the small school setting teachers' responses to the online survey instrument, the top five areas of greatest importance are Safe and Orderly Instructional Environment, Knowledge of Content Area, Communication with Students, Commitment to Professional Ethics, and Knowledge of

Curriculum. The five competencies of least importance according to respondents are Summative Assessments, Research-based Instructional Strategies, Use of Data for Instructional Planning, Content Specific State Standards, and Diagnostic Assessments.

Table 39 represents the competency mean scores for the small school setting teacher variable. The mean scores described in Table 39 are ranked based on the competencies that the small school setting teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 39

Competency Mean Score for Small School Setting teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	45	4.51
Safe and Orderly Instructional Environment	45	4.44
Communication with Students	45	4.33
Knowledge of Content Area	45	4.29
Communication with Parents	45	4.22
Student-Centered Academic Environment	45	4.20
Summative Assessments	45	4.13
Formative Assessments	45	4.11
Content Specific State Standards	45	4.09
Knowledge of Curriculum	45	4.07
Communication with District and School Personnel	45	4.04
Pedagogical Knowledge	45	4.02
Assessment Feedback to Students	45	4.02
Use Instructional Strategies to Facilitate Instruction	45	4.00
Use of Available Resources for Instructional Planning	45	3.98
Diagnostic Assessments	45	3.96
Use of Differentiated Instruction	45	3.93
Assessment Feedback to Parents/Guardians	45	3.91
Use of Data for Instructional Planning	45	3.87
Research-based Instructional Strategies	45	3.87

The range of the table above indicates that small school setting teachers of CTAE subjects have a perceived high ability of the competencies prescribed by Georgia TAPS. The range of the mean competency scores is 3.87 to 4.51. Based on small school setting teachers' responses to the online survey instrument, the top five areas of greatest competence are Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Communication with Students, Knowledge of Content Area, and Communication with Parents. The five competencies with the least competence according to respondents are Diagnostic Assessments, Use of Differentiated Instruction, Assessment Feedback to Parents/Guardians, Use of Data for Instructional Planning, and Research-based Instructional Strategies.

Table 40 represents the MWDS for the small school setting teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 40 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by small school setting teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 40

MWDS Scores for Small School CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Use of Available Resources for Instructional Planning	45	4.51	3.98	2.41
Use of Differentiated Instruction	45	4.44	3.93	2.27
Knowledge of Curriculum	45	4.53	4.07	2.12
Use Instructional Strategies to Facilitate Instruction	45	4.47	4.00	2.08
Assessment Feedback to Students	45	4.44	4.02	1.88
Assessment Feedback to Parents/Guardians	45	4.31	3.91	1.72
Knowledge of Content Area	45	4.64	4.29	1.65
Pedagogical Knowledge	45	4.38	4.02	1.56
Research-based Instructional Strategies	45	4.22	3.87	1.50
Communication with Students	45	4.64	4.33	1.44
Use of Data for Instructional Planning	45	4.20	3.87	1.40
Student-Centered Academic Environment	45	4.47	4.20	1.19
Communication with District and School Personnel	45	4.31	4.04	1.15
Safe and Orderly Instructional Environment	45	4.67	4.44	1.04
Communication with Parents	45	4.44	4.22	0.99
Diagnostic Assessments	45	4.16	3.96	0.83
Formative Assessments	45	4.29	4.11	0.76
Summative Assessments	45	4.29	4.13	0.67
Commitment to Professional Ethics	45	4.62	4.51	0.51
Content Specific State Standards	45	4.18	4.09	0.37

Based on the small setting teachers' responses to the online survey instrument, the top five areas of greatest need are Use of Available Resources for Instructional Planning, Use of Differentiated Instruction, Knowledge of Curriculum, Use of Instructional Strategies to Facilitate Instruction, and Assessment Feedback to Parents/Guardians. The five competencies of least need for professional development based on the MWDS results are Diagnostic Assessments, Formative Assessments, Summative Assessments, Commitment to Professional Ethics, and Content Specific State Standards.

Medium School Setting

Table 41 represents the importance mean scores for the medium school setting variable. The mean scores described in Table 41 are ranked based on the competencies that the medium school setting teachers of CTAE subjects selected within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 41

Importance Mean Score for Medium School Setting teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Communication with Students	106	4.82
Safe and Orderly Instructional Environment	106	4.80
Commitment to Professional Ethics	106	4.75
Knowledge of Content Area	106	4.73
Knowledge of Curriculum	106	4.65
Communication with Parents	106	4.62
Assessment Feedback to Students	106	4.59
Student-Centered Academic Environment	106	4.53
Use of Available Resources for Instructional Planning	106	4.52
Pedagogical Knowledge	106	4.50
Summative Assessments	106	4.43
Communication with District and School Personnel	106	4.42
Formative Assessments	106	4.37
Use Instructional Strategies to Facilitate Instruction	106	4.34
Use of Differentiated Instruction	106	4.28
Assessment Feedback to Parents/Guardians	106	4.28
Content Specific State Standards	106	4.25
Research-based Instructional Strategies	106	4.19
Use of Data for Instructional Planning	106	4.15
Diagnostic Assessments	106	4.15

Based on the medium school setting teachers' responses to the online survey instrument, the top five areas of greatest importance are Communication with Students, Safe and Orderly Instructional Environment, Commitment to Professional Ethics,

Knowledge of Content Area, and Knowledge of Curriculum. The five competencies of least importance according to respondents are Assessment Feedback to Parents/Guardians, Content Specific State Standards, Research-based Instructional Strategies, Use of Data for Instructional Planning, and Diagnostic Assessments.

Table 42 represents the competency mean scores for the medium school setting teacher variable. The mean scores described in Table 42 are ranked based on the competencies that the medium school setting teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 42

Competency Mean Scores for Medium School Setting teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	106.00	4.71
Safe and Orderly Instructional Environment	106.00	4.58
Communication with Students	106.00	4.51
Knowledge of Curriculum	106.00	4.50
Knowledge of Content Area	106.00	4.49
Student-Centered Academic Environment	106.00	4.38
Communication with Parents	106.00	4.34
Formative Assessments	106.00	4.33
Assessment Feedback to Students	106.00	4.33
Content Specific State Standards	106.00	4.31
Use of Available Resources for Instructional Planning	106.00	4.31
Summative Assessments	106.00	4.26
Communication with District and School Personnel	106.00	4.24
Pedagogical Knowledge	106.00	4.20
Assessment Feedback to Parents/Guardians	106.00	4.19
Use Instructional Strategies to Facilitate Instruction	106.00	4.06
Diagnostic Assessments	106.00	4.06
Use of Data for Instructional Planning	106.00	4.03
Research-based Instructional Strategies	106.00	3.98
Use of Differentiated Instruction	106.00	3.89

Based on medium school setting teachers' responses to the online survey instrument, the top five areas of greatest competence are Commitment to Professional Ethics, Safe and Orderly Instructional Environment, Communication with Students, Knowledge of Curriculum, and Knowledge of Content Area. The five competencies with the least competence according to respondents are Use of Instructional Strategies to Facilitate Instruction, Diagnostic Assessments, Use of Data for Instructional Planning, Research-based Instructional Strategies, and Use of Differentiated Instruction.

Table 43 represents the MWDS for the medium school setting teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 43 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by medium school setting teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 43

MWDS Scores for Medium School Setting CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Use of Differentiated Instruction	106	4.28	3.89	1.70
Communication with Students	106	4.82	4.51	1.50
Pedagogical Knowledge	106	4.50	4.20	1.36
Communication with Parents	106	4.62	4.34	1.31
Use Instructional Strategies to Facilitate Instruction	106	4.34	4.06	1.23
Assessment Feedback to Students	106	4.59	4.33	1.21
Knowledge of Content Area	106	4.73	4.49	1.11
Safe and Orderly Instructional Environment	106	4.80	4.58	1.09
Use of Available Resources for Instructional Planning	106	4.52	4.31	0.94
Research-based Instructional Strategies	106	4.19	3.98	0.87
Communication with District and School Personnel	106	4.42	4.24	0.79
Summative Assessments	106	4.43	4.26	0.75
Knowledge of Curriculum	106	4.65	4.50	0.70
Student-Centered Academic Environment	106	4.53	4.38	0.68
Use of Data for Instructional Planning	106	4.15	4.03	0.51
Assessment Feedback to Parents/Guardians	106	4.28	4.19	0.40
Diagnostic Assessments	106	4.15	4.06	0.39
Commitment to Professional Ethics	106	4.75	4.71	0.18
Formative Assessments	106	4.37	4.33	0.16
Content Specific State Standards	106	4.25	4.31	-0.24

Based on the medium setting teachers' responses to the online survey instrument, the top five areas of greatest need are Use of Differentiated Instruction, Communication with Students, Pedagogical Knowledge, Communication with Parents, and Use of Instructional Strategies to Facilitate Instruction. The five competencies of least need for professional development based on the MWDS results are Assessment Feedback to Parents/Guardians, Diagnostic Assessments, Commitment to Professional Ethics, Formative Assessments, and Content Specific State Standards.

Large School Setting

Table 44 represents the importance mean scores for the large school setting variable. The mean scores described in Table 44 are ranked based on the competencies that the large school setting teachers of CTAE subjects selected within the Metropolitan RESA perceived as having the greatest importance to the least importance.

Table 44

Importance Mean Score for Large School Setting teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*
Commitment to Professional Ethics	128	4.84
Communication with Students	128	4.84
Safe and Orderly Instructional Environment	128	4.81
Knowledge of Content Area	128	4.75
Knowledge of Curriculum	128	4.70
Use of Available Resources for Instructional Planning	128	4.64
Student-Centered Academic Environment	128	4.63
Assessment Feedback to Students	128	4.58
Communication with Parents	128	4.58
Pedagogical Knowledge	128	4.48
Use of Differentiated Instruction	128	4.48
Use Instructional Strategies to Facilitate Instruction	128	4.38
Formative Assessments	128	4.35
Summative Assessments	128	4.34
Content Specific State Standards	128	4.30
Communication with District and School Personnel	128	4.28
Research-based Instructional Strategies	128	4.22
Use of Data for Instructional Planning	128	4.18
Assessment Feedback to Parents/Guardians	128	4.18
Diagnostic Assessments	128	4.05

The table above indicates the importance mean scores for teachers of CTAE subjects in large school settings. The range of their perception scores is 4.05 to 4.84. Based on the large school setting teachers' responses to the online survey instrument, the

top five areas of greatest importance are Commitment to Professional Ethics, Communication with Students, Safe and Orderly Instructional Environment, Knowledge of Content Area, and Knowledge of Curriculum. The five competencies of least importance according to respondents are Communication with District and School Personnel, Research-based Instructional Strategies, Use of Data for Instructional Planning, Assessment Feedback to Parents/Guardians, and Diagnostic Assessments.

Table 45 represents the competency mean scores for the large school setting teacher variable. The mean scores described in Table 45 are ranked based on the competencies that the large school setting teachers of CTAE subjects within the Metropolitan RESA perceived as having the greatest competency to the least competence.

Table 45

Competency Mean Score for Large School Setting teachers of CTAE Subjects

Competencies Prescribed by Georgia TAPS	*n*	Competency *M*
Commitment to Professional Ethics	128	4.77
Communication with Students	128	4.60
Safe and Orderly Instructional Environment	128	4.59
Knowledge of Content Area	128	4.51
Student-Centered Academic Environment	128	4.51
Knowledge of Curriculum	128	4.45
Communication with Parents	128	4.40
Content Specific State Standards	128	4.39
Formative Assessments	128	4.31
Summative Assessments	128	4.31
Communication with District and School Personnel	128	4.30
Pedagogical Knowledge	128	4.28
Use of Available Resources for Instructional Planning	128	4.27
Assessment Feedback to Students	128	4.26
Use Instructional Strategies to Facilitate Instruction	128	4.19
Research-based Instructional Strategies	128	4.09
Assessment Feedback to Parents/Guardians	128	4.07
Use of Differentiated Instruction	128	4.02
Diagnostic Assessments	128	4.01
Use of Data for Instructional Planning	128	3.98

The range of the mean perceived competence scores is 3.98 to 4.77. The mean scores above four indicate that the teachers of CTAE subjects in large school settings have a high-perceived confidence in their competence in the prescribed categories. Based on large school setting teachers' responses to the online survey instrument, the top five areas of greatest competence are Commitment to Professional Ethics, Communication with Students, Safe and Orderly Instructional Environment, Knowledge of Content Area, and Student-Centered Academic Environment. The five competencies with the least competence according to respondents are Research-based Instructional

Strategies, Assessment Feedback to Parents/Guardians, Use of Differentiated Instruction, Diagnostic Assessments, and Use of Data for Instructional Planning.

Table 46 represents the MWDS for the large school setting teachers of CTAE subjects within the Metropolitan RESA. The MWDS described in Table 46 are categorized based on the perceived competence and importance of competencies prescribed by TAPS by large school setting teachers that responded to on an online survey instrument. These data reveal the areas of the greatest need for professional development and program improvement.

Table 46

MWDS Scores for Large School Setting CTAE Teachers

Competencies Prescribed by Georgia TAPS	*n*	Importance *M*	Competency *M*	MWDS
Use of Differentiated Instruction	128	4.48	4.02	2.06
Use of Available Resources for Instructional Planning	128	4.64	4.27	1.70
Assessment Feedback to Students	128	4.58	4.26	1.47
Knowledge of Curriculum	128	4.70	4.45	1.21
Knowledge of Content Area	128	4.75	4.51	1.15
Communication with Students	128	4.84	4.60	1.13
Safe and Orderly Instructional Environment	128	4.81	4.59	1.09
Pedagogical Knowledge	128	4.48	4.28	0.91
Use Instructional Strategies to Facilitate Instruction	128	4.38	4.19	0.86
Use of Data for Instructional Planning	128	4.18	3.98	0.85
Communication with Parents	128	4.58	4.40	0.82
Student-Centered Academic Environment	128	4.63	4.51	0.58
Research-based Instructional Strategies	128	4.22	4.09	0.56
Assessment Feedback to Parents/Guardians	128	4.18	4.07	0.46
Commitment to Professional Ethics	128	4.84	4.77	0.38
Formative Assessments	128	4.35	4.31	0.17
Diagnostic Assessments	128	4.05	4.01	0.16
Summative Assessments	128	4.34	4.31	0.10
Communication with District and School Personnel	128	4.28	4.30	-0.07
Content Specific State Standards	128	4.30	4.39	-0.40

Based on the large setting teachers' responses to the online survey instrument, the top five areas of greatest need are Use of Differentiated Instruction, Use of Available Resources for Instructional Planning, Assessment Feedback to Students, Knowledge of Curriculum, and Knowledge of Content Area. The five competencies of least need for professional development based on the MWDS results are Formative Assessments, Diagnostic Assessments, Summative Assessments, Communication with District and School Personnel, and Content Specific State Standards.

Table 47

Comparison of Top MWDS Scores Between All School Population Demographic Variable Categories

School Size		*n*	Importance *M*	Competency *M*	MWDS
Small					
	Use of Available Resources for Instructional Planning	45	4.51	3.98	2.41
	Use of Differentiated Instruction	45	4.44	3.93	2.27
	Knowledge of Curriculum	45	4.53	4.07	2.12
	Use Instructional Strategies to Facilitate Instruction	45	4.47	4.00	2.08
Medium					
	Use of Differentiated Instruction	106	4.28	3.89	1.70
	Communication with Students	106	4.82	4.51	1.50
	Pedagogical Knowledge	106	4.50	4.20	1.36
	Communication with Parents	106	4.62	4.34	1.31
Large					
	Use of Differentiated Instruction	128	4.48	4.02	2.06
	Use of Available Resources for Instructional Planning	128	4.64	4.27	1.70
	Assessment Feedback to Students	128	4.58	4.26	1.47

Table 47 is representative of the three population size demographic variable categories (i.e. Small, Medium, and Large). The table indicates that all demographic categories have Use of Differentiated Instruction in the top areas of greatest professional

development need. The Small and Large school population categories have Use of Available Resources for Instructional Planning listed in their top areas of greatest need. The table indicates that the Large population category is the category with the greatest number of participants ($N = 128$). The highest MWDS is Use of Available Resources for Instructional Planning within the Small school population category with 2.41.

Overall Comparative Data Analysis

Upon the completion of MWDS for each demographic variable group, the researcher compared each variable to identify patterns based on the MWDS indicated for each category. Of the 20 competencies prescribed by Georgia TAPS, Use of Differentiated Instruction was indicated across all variable groups as a top three area of greatest need according to the rankings of MWDS scores. Use of Differentiated Instruction was also indicated as the area of greatest professional development need when the aggregate MWDS was calculated for all survey participants ($N = 279$). The area of greatest professional development need indicated by MWDS for the Experience level demographic variable is Use of Differentiated Instruction (MWDS = 3.72). The area of greatest professional development need indicated by MWDS for the School Type demographic variable is Use of Differentiated Instruction and Communication with Students (MWDS = 3.14). The area of greatest professional development need indicated by MWDS for the School Population demographic variable is Use of Available Resources for Instructional Planning (MWDS = 2.14).

Within each demographic variable, differences were determined in the level of professional development need regarding Georgia TAPS competency standards. In the Experience demographic, the beginning teacher group MWDS demonstrated a great need

for professional development in 17 Georgia TAPS standards. Within the School Type category, the career academy teachers of CTAE subjects MWDS demonstrated a need in 13 of the 20 Georgia TAPS standards. The Small School setting MWDS indicated a great need for professional development in 16 of the 20 Georgia TAPS standards that were surveyed. The differences between these demographic subgroups indicated that they had more professional development need than the other groups within their respective demographic variable category.

Chapter V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Career and Technical Education has become an increasingly important aspect of education within the United States. The United States Department of Education and the Office of Career, Technical, and Adult Education (2016) encourage school systems to improve Career and Technical program quality through professional development. Through this federal mandate states, local leaders, and stakeholders are encouraged to guide the manner in which Career and Technical leaders allocate funds, shape curriculum for students, and provide professional development opportunities for teachers of Career and Technical subjects. Additionally, as the needs of students change, the preparation and professional development of teachers must adapt to meet those needs. Needs assessments provide guidance to professional development program improvement by analyzing perceptions of target populations (Cannon et al., 2010; Royse et al., 2001).

The purpose of this study was to identify and prioritize the professional development needs of teachers of Career, Technical, and Agricultural Education (CTAE) subjects within Georgia metropolitan area school systems. Teachers of CTAE subjects within the Atlanta Metropolitan Regional Education Service Agency (RESA) participated in an online survey that self identified demographic information and measured their perceived importance of and perceived competence in standards prescribed by the

Georgia Teacher Assessment of Performance Standards (TAPS). The population sample consisted of 279 teachers of CTAE subjects within the Atlanta Metropolitan RESA.

In this chapter, conclusions and recommendations for professional development for teachers of CTAE subjects will be discussed. Additionally, recommendations for further research will be presented.

Research Questions

The following research questions guided this study:

1. What are the prioritized professional development needs of teachers of CTAE subjects as related to Georgia Teacher Performance Standards (TAPS)?
2. What are the professional development needs based upon the level of experience of teachers of CTAE subjects (new, mid-career, veteran, and late career)?
3. What are the professional development needs based upon the school setting in which teachers of CTAE subjects work (comprehensive secondary setting, career academy, middle school, and high school)?
4. What are the professional development needs based upon the school population size for teachers of CTAE subjects (small, medium, and large)?

The purpose of this study was to identify and prioritize the professional development needs for teachers of CTAE subjects based upon their individual and collective point of need. The survey responses from the sample population yielded data that quantitatively identified the areas of greatest need for each of the identified variables. Teacher experience, school type, and school population demographic groups were self-identified by participants using an online survey instrument. Once demographic data was

collected, participants rated their perceived importance of and perceived competence in 20 competencies that were prescribed by Georgia TAPS. A modified Borich Needs Assessment Model (Borich, 1980) was used to identify and rank the competencies with the greatest discrepancy between importance and competence. Each Georgia TAPS prescribed competency was then ranked for each demographic category.

In addition to the demographic categories mentioned, participants were disaggregated within each demographic category. Within the experience demographic, participants self-identified as a beginning, mid-career, veteran, or late career teacher. Within the school type category, participants self identified their setting as a comprehensive secondary setting, career academy setting, middle school setting, or high school setting. Within the school size demographic, participants self identified their setting as a small school, medium school, or large school. Upon the completion of the demographic information, participants completed the likert-type survey rating each participant's importance and competency perceptions of Georgia TAPS standards.

The numeric scores of all participants ($N = 279$) responses were analyzed, yielding aggregate mean scores for perceived importance and perceived competency in each of the 20 Georgia TAPS standards. The mean perceived importance and mean perceived competency scores were ranked for all participant and also disaggregated by each participant's self identified demographic variable group. Additionally, the perceived importance and perceived competency means for the 20 Georgia TAPS standards were computed in the Mean Weighted Discrepancy Score (MWDS) calculator developed by McKim (2014). An MWDS score was yielded for each standard using the MWDS calculator. The scores were then used to identify and prioritized standards for all

teachers of CTAE subjects and the self-identified demographic variables. The standards that had the greatest MWDS were identified and prioritized for each demographic variable.

Upon identifying and ranking each demographic category's MWDS scores, commonalities were revealed based upon discrepancy in scores along with the need for professional development. When identifying the TAPS competencies with the greatest MWDS, the Use of Differentiated Instruction was identified across all demographic variable categories. It was apparent that there was a great need for professional development in the Use of Differentiated Instruction for all experience levels, all school types, and all school sizes.

Within the experience variable, beginning and mid-career teachers that work in medium school settings have a professional development need in Pedagogical Knowledge. Beginning teachers and late career teachers that work in comprehensive secondary and middle school settings in large and small school settings have a professional development need in the use of Available Resources of Instructional Planning. Mid-career teachers that worked in middle school and career academies that are in medium school size settings revealed that there was need for professional development in Communication with Students. Mid-Career teachers that work in middle schools within medium school sizes revealed the need for professional development in Communication with Parents.

The two largest experience demographic variables were the veteran and late career teachers of CTAE subjects. These groups collectively accounted for more than half of the participants within the study. There was a professional development need for

Assessment Feedback to Students with veteran and late career teachers that work in middle and high large school settings. The large school setting represented the greatest number of participants within the school size variable.

Conclusions

Based on the findings of the study, the following conclusions are offered:

1. There is a professional development need in many of the Georgia TAPS standards for teachers of CTAE subjects;

   The results of the study indicated that there are TAPS standards that have a need for professional development across all demographic variables. The use of differentiated instruction, knowledge of curriculum, use of available resources for instructional planning, assessment feedback to students, and communication with students demonstrated the highest need. It is concluded that Georgia TAPS standards professional development needs was indicated by the research in this study.

2. Experience, school type, and school size have a relationship with the type of professional development that teachers of CTAE subjects need as it relates to the Georgia TAPS standards;

   The demographic variable groups' results demonstrated that there are different Georgia TAPS standard professional development needs relate to CTAE experience, school type, and school size. While the data revealed the need for professional development for teachers of CTAE subjects across all demographic groups, it also revealed professional development needs unique to school type and school size, collectively and individually. High school

teachers of CTAE subjects revealed the need for professional development in Assessment Feedback to Parents/Guardians and Knowledge of Content Area. Lastly, teachers that work in small school settings revealed the need for professional development in Knowledge of Curriculum and Use of Instructional Strategies to Facilitate Instruction.

3. There is a need for customized professional development for teachers of CTAE subjects within the Metropolitan RESA school systems;

   The researcher concludes that there is a need for customized professional development for teachers of CTAE subjects. Each variable group demonstrated the need for unique professional development needs based on the standards that are prescribed by the Georgia TAPS. Professional development program improvement is meaningful and more effective when it is informed by the program evaluation measures (Royse et al., 2001). For instance beginning teachers of CTAE subjects have different professional development needs than late career teachers of CTAE subjects. The same can be stated for teachers of different school settings and school population sizes. School type, school size and experience level are important consideration when providing professional development to teachers of CTAE subjects (Cannon et al., 2013).

Recommendations for Professional Development

The findings of this study have revealed the need for prioritized and customized professional development. The recommendations for professional development, based on this study, are as follows:

1. When System Administrators, CTAE Directors, and Professional Development Directors plan professional development for teachers of CTAE subjects, the experience level, school type, and school size should be considered before a decision is made on specific topics to be delivered.
2. When professional development is delivered to teachers of CTAE subjects, professional development administrators should consider how each topic relates to teacher performance, based upon Georgia TAPS. Teachers of CTAE subjects have an interest in improving performance relative to the evaluation tool that is used to measure their performance.
3. Based in the results of this study, it is recommended that professional development be provided to teachers of CTAE subjects on the use of differentiated instruction, the use of available resources for instructional planning, and assessment feedback to student. The use of differentiated instruction was an area of professional development need across all demographic groups while the use of available resources for instructional planning and assessment feedback to students was somewhat common across all demographic groups.
4. Based on the results of this study, it is recommended that beginning teachers of CTAE subjects, career academy teachers of CTAE subjects, and small

school setting teachers of CTAE subjects receive additional professional development as it relates to the Georgia TAPS standards.

5. The results of this study can provide School System Administrators, CTAE Directors, and Professional Development Directors with recommendations for customized professional development opportunities for Beginning, Mid-Career, Veteran, and Late Career teachers of CTAE subjects. The results of this study also provide customized recommendations for Comprehensive Secondary, Career Academy, Middle, and High School Settings. Lastly, this study provided customized professional development recommendations for Small, Medium, and Large school size settings.
    - Experience Level Recommendations
        i. Differentiation instruction would be a professional development topic for teachers of CTAE subjects across all experience levels (i.e. beginning, mid-career, veteran, and late career)
        ii. Beginning teachers of CTAE subjects would receive customized professional development offerings that focus on the use of differentiated instruction, pedagogical knowledge, available resources of instructional planning, use of instructional strategies to facilitate instruction, research-based instructional strategies, safe and orderly instructional environment, and communication with district and school personnel.

iii. Beginning teachers of CTAE subjects would receive additional special professional development opportunities regarding standards prescribed by Georgia TAPS more often than other experience groups.

iv. Mid-career teachers would receive customized professional offerings that focus on communication with students, use of differentiated instruction, communication with parents, and pedagogical knowledge.

v. Veteran teachers of CTAE subjects would receive customized professional development offerings that focus on assessment feedback to students and the use of differentiated instruction.

vi. Late career teachers of CTAE subjects would receive customized professional development offerings that focus on the use of available resources for instructional planning, use of differentiated instruction, and assessment feedback to students.

- School Type Recommendations
  i. Differentiation instruction would be a professional development topic for teachers of CTAE subjects across all school types (i.e. comprehensive secondary settings, career academies, middle and high school).

  ii. Comprehensive secondary setting teachers of CTAE subjects would receive customized professional development offerings

that focus on the use of available resources for instructional planning and the use of differentiated instruction.

iii. Career academy teachers of CTAE subjects would receive customized professional development offerings that focus on the use of differentiated instruction, communication with students, knowledge of their curriculum, use of instructional strategies to facilitate instruction, pedagogical knowledge, communication with parents, and knowledge of content area.

iv. Career Academy teachers of CTAE subjects would receive additional professional development opportunities regarding standards prescribed by Georgia TAPS more often than other school type.

v. Middle school teachers of CTAE subjects would receive customized professional development offerings that focus on the use of differentiated instruction, communication with parents, communication with students, assessment feedback to students, and the use of available resources for instructional planning.

vi. High school teachers of CTAE subjects would receive customized professional development offerings that focus on assessment feedback to students, use of differentiated instruction, assessment feedback to parents/guardians, and knowledge of content area.

- School Population Recommendations
    i. Differentiation instruction would be a professional development topic for teachers of CTAE subjects across all school size settings (i.e. small, medium, and large).
    ii. Small school setting teachers of CTAE subjects would receive customized professional development offerings that focus on the use of available resources for instructional planning, use of differentiated instruction, knowledge of curriculum, use of instructional strategies to facilitate instruction, assessment feedback to students, assessment feedback to parents/guardians, knowledge of content area, and pedagogical knowledge.
    iii. Small school setting teachers of CTAE subjects would receive additional professional development opportunities regarding standards prescribed by Georgia TAPS more often than other school size group.
    iv. Medium school setting teachers of CTAE subjects would receive customized professional development offerings that focus on the use of differentiated instruction, communication with students, pedagogical knowledge, and communication with parents
    v. Large school setting teachers of CTAE subjects would receive customized professional development offerings that focus on

the use of differentiated instruction, use of available resources for instructional planning, and assessment feedback to students.

Recommendations for Further Research

Based upon the findings of this research, the researcher presents the following as recommendations for further research:

1. In this study the researcher rated the perceived importance and perceived competence of teachers of CTAE subjects to determine the areas of greatest need regarding the Georgia TAPS competencies. Future research would also rate the perceptions of school system administrators, CTAE directors, and professional development directors using a similar instrument to identify discrepancies in teacher and administrator perception of professional development need.
2. In this study, the researcher employed one survey window. Future research would examine changes in perception of professional development need during a specific time frame.
3. In this study, the demographic information consisted of experience level, school type, and school population. Future studies would identify other demographic types, such as program type.
4. Content areas would be the demographic variables in future studies. An examination of individual CTAE content areas would identify the professional development needs of the identified CTAE subjects.
5. The scope of this study did not call for specifying the education level of the teachers surveyed. Identifying teacher educational level would lead to a richer

understanding of the role of educational attainment as it relates to the perception of professional development need.

6. The study conducted used a sample of teachers of CTAE subjects that were within the Atlanta Metropolitan RESA. Future research would be conducted statewide to increase the significance of the results and gain a more robust understanding of the needs of teachers of CTAE subjects within the state of Georgia.
7. The study conducted identified certain demographics that demonstrated more professional development need than others. Future research would examine the professional development needs of beginning, career academy, and small school setting teachers of CTAE subjects.
8. In this study, Georgia TAPS was used as the basis of competencies upon which CTAE teachers were evaluated. Future research would use priorities and competencies established by individual school systems as the basis of measurement.
9. Future research would examine how charter and private schools meet the professional development needs of teachers of CTAE subjects.
10. In this study, the participants were exclusively teachers of CTAE subjects. Future research would survey non-CTAE teachers to compare results and areas of professional development need.
11. Future research would identify the financial resource allocation to the areas of professional development need for teachers of CTAE subjects.

12. In this study, the participants were exclusively from the Metropolitan RESA. Future studies would compare professional development needs across all RESAs throughout the state of Georgia.

Limitations

The use of Georgia TAPS as the basis of the survey instrument provides the research study with external validity. The same evaluation tool measured all teachers of CTAE subjects throughout the state of Georgia. The sample population consisted of eight of the 12 school systems located within the Metropolitan RESA. 279 ($N = 279$) teachers of CTAE subjects participated in the online survey, representing 29.5% of the sample population.

The findings of this study can be somewhat generalized to similar RESAs within the state of Georgia with a higher concentration of CTAE teachers. A limitation to this study was the survey responses were based on perceptions. Although the online survey responses were based on perceptive responses, the researcher employed systematic data collection procedures to neutralize the limitation of respondent subjectivity (Patton, 2002). Another limitation to this study was the time that the online survey window was open to participants. The survey window was available during the spring semester of the 2017-2018 school year. During this time of the school year, schools are preparing for and administering state and system required testing. Participants may have had work obligations and activities that impacted their ability to complete the online survey. Also respondents' motivation to complete the online survey may have been influenced by work and/or personal time commitments.

Summary

The conclusions and recommendations of this research study were made in an effort to improve CTAE instruction within the Metropolitan RESA and throughout the state of Georgia. It is the researcher's intent to help shape the landscape of CTAE instruction in a positive direction by meeting the needs of the teachers of CTAE subjects. The results of informed professional development offerings would lead to a richer instructional experience for students and subsequently, better student outcomes. Customized and prioritized professional development would make a positive impact on all educational stakeholders. The benefit of this study is that it is an important a valuable resource to school systems, professional development directors, CTAE Directors, and teachers of CTAE subjects. This study provides organizations with a research-based guide to professional development opportunities that meet the needs of teachers of CTAE subjects.

References

Adams, E. (2010). A framework for the preparation of accomplished career and technical education teachers. *Journal of Career And Technical Education. 25(1), 21-34.*

Akdere, M., & Conceição, S. (2009). An assessment of graduate adult education and human resource development programs: A U.S. Perspective. *New Horizons in Adult Education & Human Resource Development, 23*(4), 38-50.

Anastas, J. W., & MacDonald, M. (1999). *Research design for social work and the human services.* New York, NY: Lexington Books.

Borich, G. (May-Jun 1980, 1980). A needs assessment model for conducting follow-up studies. *Journal of Teacher Education*, 31(3), 39-42.

Cannon, J. G., Kitchel, A., & Duncan, D. W. (2010). Identifying perceived professional development needs of Idaho secondary CTE teachers: Program management needs of skilled and technical science teachers. *Journal Of Industrial Teacher Education*, *47*(1), 42-69.

Cannon, J. G., Kitchel, A., & Tenuto, P. (2013). District superintendent perceptions of Idaho secondary CTE teachers' professional development needs. *Journal Of Career & Technical Education*, *28*(1), 39.

Carl D. Perkins Career and Technical Education Improvement Act of 2006, Public Law 109-270, 109 U.S. (2006). Retrieved from www.gpo.gov/fdsys/pkg/PLAW-109publ270/pdf/PLAW-109publ270.pdf

Creswell, J. W. (2015). *A Concise Introduction to Mixed Methods Research*. Thousand Oaks: Sage, 2015.

Croasmun, J. T., & Ostrom, L. (2011). Using Likert-type scales in the social sciences.

Journal Of Adult Education, *40*(1), 19-22.

CTAE Resource Network (2017). Mission and Purpose. Retrieved from https://www.ctaern.org/mission

Dowd, L.A. (2011). *Agriculture students' perceived competency of skills necessary to be successful in college*. University of Georgia (UGA).

Drage, K. (2010). Professional development: Implications for Illinois career and technical education teachers. *Journal of Career And Technical Education. 25(2), 24-37.*

Georgia College and Career Academies, (2018). Retrieved from http://georgiacareeracademies.org/?page_id=6

Georgia Department of Education (2014a). TAPS Performance Standards and Rubrics. Teacher and Leader Effectiveness. Retrieved from https://www.gadoe.org/School-Improvement/Teacher-and-Leader-Effectiveness/Documents/FY15%20TKES%20and%20LKES%20Documents/TAPS_Reference_Sheet%206-5-14.pdf

Georgia Department of Education (2014b). TAPS Performance Standards and Rubrics. Teacher and Leader Effectiveness. Retrieved From https://www.gadoe.org/School-Improvement/Teacher-and-Leader-Effectiveness/Documents/FY15%20TKES%20and%20LKES%20Documents/A_TAPS%20Standard%20Rubrics%20C2.pdf

Georgia Department of Education (2015). Student Learning Objectives. Retrieved from https://www.gadoe.org/School-Improvement/Teacher-and-Leader-Effectiveness/Documents/2015-2016%20SLO%20Manual%20819.pdf

Georgia Department of Education (2017). College and Career Ready Performance Index. Retrieved from http://www.gadoe.org/CCRPI/Pages/default.aspx

Georgia Department of Education (2017a). CCRPI FY 2015 Data Collections Annual Conference. Retrieved from http://www.gadoe.org/technology-services/data-collections/Pages/Data-Collections-and-Reporting.aspx

Georgia Department of Education (2017b). Georgia Milestones Assessment System. Retrieved from http://www.gadoe.org/Curriculum-Instruction-and-Assessment/Assessment/Pages/Georgia-Milestones-Assessment-System.aspx

Georgia Department of Education (2018a). Teacher Keys Effectiveness System. Retrieved from http://www.gadoe.org/School-Improvement/Teacher-and-Leader-Effectiveness/Pages/Teacher-Keys-Effectiveness-System.aspx

Georgia Department of Education (2018b). Teacher and Leader Effectiveness. Retrieved From http://www.gadoe.org/School-Improvement/Teacher-and-Leader-Effectiveness/Pages/default.aspx

Georgia Department of Education (2018c). Professional Development. Retrieved from http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/Professional-Development.aspx

Georgia General Assembly (2013) 2013-2015 Regular Session. Retrieved from: http://www.legis.ga.gov/legislation/en- US/display/20132014/HB/244.

Gentry, M., Rizza, M., Peters, S., Hu, S. (2005) Professionalism, sense of community and reason to learn: Lessons from an exemplary career and technical education center. *Career and Technical Education Research. 30(1) 47-85(39).*

Golden, M. (2013). *Assessing needs of middle school agriculture teachers in Georgia. Dissertation.* Auburn University.

Garton, B., & Chung, N. (1997). An assessment of the in-service needs of beginning teachers of agriculture using two assessment models. *Journal of Agricultural Education*. 38(3). 51-58.

Goodson, I. (2014). Context, curriculum and professional knowledge. *History Of Education*, *43*(6), 768.

Gordon, H. (2014). *The history and growth of career and technical education in America*. Long Grove, IL: Waveland Press.

Goos, P. & Meintrup, D. (2015). *Statistics with JMP: graphs, descriptive statistics and probability.* Wiley: San Francisco, CA.

Guskey, T. R. (2003). What makes professional development effective?. *Phi Delta Kappan*, *84*(10), 748.

Guskey, T.R. & Kwang Suk, Y. (2009). What works in professional development?. *Phi Delta Kappan*, *90*(7), 495-500.

Green, C., Moore, C., & Clark, K. (2015). *What CTE instructors really want for professional learning*. Washington, DC: American Institutes for Research.

Hall, A. (2015, Nov 02). School system reports gains in state testing scores. *TCA Regional News.*

Haverback, H., & Mee, M. (2013). Middle school teachers' perceptions of the benefits and barriers of common planning. *Journal Of Curriculum and Instruction,* (2), 6.

House Bill 244: Elementary and secondary education; annual performance evaluations; revise certain provisions.

Husby, V. R. (2005). *Individualizing professional development : a framework for meeting school and district*. Thousand Oaks, CA: Corwin Press.

International Baccalaureate, (2016). Retrieved from: http://www.ibo.org/about-the-ib/

Joerger, R. (2002). A Comparison of the in-service needs of two cohorts of beginning Minnesota agricultural education teachers. *Journal of Agricultural Education*. 43(3), 11-24.

Kallioinen, O. (2011). Transformative teaching and learning by developing. *Journal of Career And Technical Education. 26(2), 8-27.*

Kitchel, A., Cannon, J., & Duncan, D. (2010). Professional development priorities of Idaho business teachers: An examination of a set of competencies associated with teaching and learning. *Delta Pi Epsilon Journal, 52*(3), 138-151.

Knowles, M. S., Holton, E. F., & Swanson, R. A. (2011). *The adult learner: The definitive classic in adult education and human resource development (7th ed.)*. Oxford, UK: Elsevier.

Kumi-Yeboah, A., & James, W. (2012). Transformational teaching experience of a novice teacher. *Adult Learning*, *23*(4), 170-177.

Lavigne, H. J., Shakman, K., Zweig, J., Greller, S. L. (2016). Principals' time, tasks, and professional development: An analysis of schools and staffing survey data. REL 2017-201. *Regional Educational Laboratory Northeast & Islands*.

Loveland, T. (2012). Professional Development plans for technology education: Accountability-based applications at the secondary and post-secondary level. *Technology & Engineering Teacher, 71(7),* 26-31.

McKim, B. (2014). *Assessing knowledge, performance, and consequences competence with the Borich Needs Assessment Model.* Texas A & M University, College Station, TX

Mckim, B. & Saucier, P. (April 2011) An Excl-based mean weighted discrepancy score calculator. *Journal of Extension*, v49 n2. Retrieved from https://www.joe.org/joe/2011april/tt8.php

Metropolitan Regional Education Services Agency (2016). Local School Districts. Retrieved from: http://www.ciclt.net/sn/org/o_list.aspx?SearchType=OC_Code&ClientCode=mresa&OC_Code=localsystem

Moon, D. (2014). *Oregon Industrial and Engineering teachers' perceived professional development needs.* University of Oregon.

Mosley, C. (2015). Getting personal. *Techniques: Connecting Education & Careers, 90*(2), 10-11.

National Career Academy Coalition (2013). National Standards of Practice for Career Academies. Retrieved from http://casn.berkeley.edu/resource_files/national_standards.pdf

Office of Career, Technical, and Adult Education (2014). Offices. Retrieved from http://www2.ed.gov/about/offices/list/ovae/index.html

Pelavin Research Institute (1998) Professional development resource guide for adult educators and professional development resources supplement: Improving instruction, organization, and learner outcomes. Retrieved from https://files.eric.ed.gov/fulltext/ED480442.pdf

Patton, M. Q. (2002). *Research design: Qualitative, quantitative and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Patton, M. Q. (2009). *Understanding research methods. An overview of the essentials, (7th ed.)*. Los Angeles, CA: Pyrczak Publishing.

Peake, J., Duncan, D., & Ricketts, J. (2007). Identifying technical content training needs of Georgia agriculture teachers. *Journal of Career and Technical Education, 23*(1), 44-54.

Perry, J. & Wallace, E. (2012). What schools are doing around career development: Implications for policy and practice. *New Directions For Youth Development, 2012*(134), 33.

Professional development resource guide for adult educators and professional development resources supplement: Improving instruction, organization, and learner outcomes through professional development (1998). Pelavine Research Institute. Washington, DC.

Rice, J., LaVergne, D., & Gartin, S. (2011). Agricultural teacher perceptions of school components a motivational factors to continue teaching and demotivational factors to discontinue teaching. *Journal of Career And Technical Education. 26(2) 105-115.*

Royse, D., Thyer, B., Padgett, D., & Logan, T. (2001). *Program Evaluation: An Introduction*. (3rd Ed). Wadsworth: Belmont, CA.

Ruhland, S., & Bremer, C. (2002). Professional development needs of novice career and technical education teachers. *Journal Of Career And Technical Education*, *19*(1), 18-31.

Ruhland, S. & Bremer, C. (2003). Perceptions of traditionally and alternatively certified career and technical education teachers. *Journal Of Vocational Education Research*, *28*(3), 285-302.

Santrock, J. (2011). *Educational Psychology (5th ed.)*. New York: McGraw-Hill.

Semadeni, J. (2009). *Taking Charge of Professional Development: A Practical Model for Your School.* Alexandria, VA: Association for Supervision and Curriculum Development.

Stecher, B., Vernez, G., & Steinberg, P. (2010). *Reauthorizing No Child Left Behind: Facts ad Recommendations.* Santa Monica, CA: RAND Corporation.

Threeton, M. D. (2007). The Carl D. Perkins Career and Technical Education (CTE) Act of 2006 and the roles and responsibilities of CTE teachers and faculty members. *Journal Of Industrial Teacher Education*, *44*(1), 66-82.

U.S. Department of Education (2002a). The No Child Left Behind Act of 2001, Public Law 107-110. Retrieved from https://www2.ed.gov/policy/elsec/leg/esea02/107-110.pdf

U. S. Department of Education (2002b). The Carl D. Perkins Vocational and Technical Education Act, Public Law 105-332. Retrieved from https://www2.ed.gov/offices/OVAE/CTE/perkins.html

U.S. Department of Education (2009). Race to the Top Program Executive Summary. Retrieved from https://www2.ed.gov/programs/racetothetop/executive-summary.pdf

U.S. Department of Education (2014) State Strategies for Financing Career and Technical Education. Retrieved from https://files.eric.ed.gov/fulltext/ED555236.pdf

U.S. Departmant of Education (2015) Every Students Succeeds Act (ESSA). Retrieved from https://www.ed.gov/essa

Van Tiem, D., Moseley, J., Dessinger, J. (2012). *Fundamentals of Performance Improvement: Optimizing Results, People, Process, and Organizations (3rd ed.).* Wiley: San Francisco, CA.

Wang, V., & King, K. (2009). *Building Workforce Competencies in Career and Technical Education.* Charlotte, NC: Information Age Publishing.

Weidenseld, Y., & Bashevis, Y. (2013). *Professional development: Perspectives, strategies and practices.* Hauppauge, NY: Nova Science Publishers, Inc.

Wichowski, C. P., & Heberley, G. (2004). A Summary Report on Priorities in CTE Professional Development. Louisville, KY. National Center for Career and Technical Education.

Wood, C. L., Goodnight, C. I., Bethune, K. S., Preston, A. I., & Cleaver, S. L. (2016). Role of professional development and multi-level coaching in promoting evidence-based practice in education. *Learning Disabilities. A Contemporary Journal*, *14*(2), 159.

Zepeda, S. J., Parylo, O., & Bengtson, E. (2014). Analyzing principal professional development practices through the lens of adult learning theory. *Professional Development in Education, 40*(2), 295-315.

Appendix A:

Email Requesting Permission to Conduct Research Study

And Responses to Request

Email sent to Metro Regional Education Service Agency (RESA) Career, Technical, and Agricultural Directors:

Greetings CTAE Administrator:

I am a doctoral candidate at Valdosta State University. I am conducting a research study that will identify and prioritize the professional development needs for teachers of CTAE subjects within the Metropolitan Regional Education Service Agency (Metro RESA) area. The goal of this study is to provide you with valuable information that will help inform your decisions regarding differentiated professional development for teachers of CTAE subjects. Please read the following detailed description of the purpose of the study:

> The purpose of this study is to identify and prioritize the professional development needs of teachers of CTAE subjects in the metropolitan Atlanta region. Moreover, the study will provide an understanding of the relationship between CTAE teachers' perceived importance and perceived competence regarding Georgia Teacher Assessment Performance Standards (TAPS). Results of the survey will yield professional development recommendations for the following variables: teacher experience, school type, and school population.

I am requesting your support and participation in this important study, which has the potential to benefit teachers of CTAE subjects. Your CTAE department was selected because it is a part of the Metropolitan RESA. The Metropolitan RESA school districts are as follows: Atlanta Public Schools, Buford County Schools, Clayton County Schools, Cobb County Schools, Decatur City Schools, Dekalb County Schools, Douglas County Schools, Forsyth County Schools, Fulton County Schools, Gwinnett County Schools, Marietta City Schools, and Rockdale County Schools. With your permission, I will be distributing surveys by email to all participating teachers of CTAE subjects in the fall semester of the 2017-2018 school year. All responses will be anonymous. Additionally, all result will be available to you, upon your request, at the conclusion of the research study.

I appreciate the time that you have taken to consider this request. The results of this study will help inform your decisions as it relates to CTAE program improvements and differentiated professional development. Lastly, with your help, this study will greatly benefit the Metropolitan RESA schools, districts, CTAE programs, and most importantly our CTAE students. If you have any questions or concerns, please feel free to contact me by phone and/or email.

Respectfully,

Charlie E. McAdoo II
Doctoral Candidate
Valdosta State University

Appendix B:

Email Requesting Permission to use Mean Weighted discrepancy Score Calculator and responses

Email sent to obtain Excel-Based Mean Weighted Discrepancy Calculator.

Good Afternoon Dr. McKim.

I am a Career, Technical, and Agricultural teacher in the metropolitan Atlanta area and a doctoral candidate at Valdosta State University in Valdosta, GA. I am currently developing my research study and will be using MWDS to identify and prioritize and prioritize professional development needs. During my research, I found your article about an Excel-Based MWDS calculator. If possible, I am interested in using your MWDS calculator in my study to assist with my analysis. Is there a copy of your calculator online? If not, would it be possible for you to send me a copy of the calculator? Thank you for your time. I look forward to hearing from you.

Respectfully,

Charlie McAdoo II
Doctoral Candidate
Adult and Career Education
Valdosta State University
cmcadoo@valdosta.edu
404.228.0110

Response from Dr. McKim regarding accessing Excel-Based Mean Weighted Discrepancy Score:

Good morning,
You can download the most recent version (1.4) of the MWDS calculator at http://tx.ag/excelMWDS

The link will take you to a Google Drive folder with the Excel file, instructions, and supplementary information.
Take care,
-brm

Billy R. McKim, Ph.D.
Assistant Professor
Texas A&M University
Director, Digital Media Research and Development Laboratory
Program Manager, Fusion Radio, KNDE 95.1 FM HD2
2116 TAMU
AGLS Building
600 John Kimbrough Boulevard, Room 267
College Station, TX 77843-2116
Office: (979) 845-0794
Fax: (979) 845-6296
Cell: (307) 760-5941

Appendix C:

Email sent to teachers of CTAE subjects requesting their participation

Email sent to teachers of CTAE subjects Metro Regional Education Service Agency (RESA) Career, Technical, and Agricultural:

Greetings:

My name is Charlie McAdoo II, I am a doctoral candidate at Valdosta State University. I am conducting a research study that will identify and prioritize the professional development needs for teachers of CTAE subjects within the Metropolitan Regional Education Service Agency (Metro RESA) area. I, too, am a CTAE teacher and find that many professional development opportunities do not specifically address our needs. This study may help Georgia school districts by providing recommendations for customized CTAE professional development that meet our needs. Your participation is vital in improving future CTAE professional development. All responses will be anonymous. Results will be provided to your CTAE director. The survey link is as follows:

https://valdosta.co1.qualtrics.com/jfe/form/SV_5oOzETaE3MjcEq9

Your CTAE department was selected because it is a part of the Metropolitan RESA. The Metropolitan RESA school districts are as follows: Atlanta Public Schools, Buford County Schools, Clayton County Schools, Cobb County Schools, Decatur City Schools, Dekalb County Schools, Douglas County Schools, Forsyth County Schools, Fulton County Schools, Gwinnett County Schools, Marietta City Schools, and Rockdale County Schools. Lastly, with your help, this study will greatly benefit the Metropolitan RESA schools, districts, CTAE programs, and most importantly our CTAE students. If you have any questions or concerns, please feel free to contact me by phone and/or email.

Respectfully,

Charlie E. McAdoo II
Doctoral Candidate
Adult and Career Education
Valdosta State University
cmcadoo@valdosta.edu

Appendix D:

Survey Instrument

Survey Instrument - McAdoo

Thank you for participating in this brief survey. Upon completing questions regarding demographic information, you will begin the short survey. The purpose of this survey is to identify and prioritize the professional development needs of Georgia CTAE teachers within the Metro RESA. All participants and answers will be anonymous. Your participation is greatly appreciated and your feedback will be used to help strengthen CTAE professional development. Press the red on the bottom right of the screen to continue.

D1 Select the answer that best describes your teaching experience.

- ❍ (0-5 years experience) (1)
- ❍ (6-10 years experience) (2)
- ❍ (11-20 years experience) (3)
- ❍ (21 years experience - above) (4)

D2 Select the answer that best describes your school type.

- ❍ Comprehensive Secondary School Setting (1)
- ❍ Career Academy (2)
- ❍ Middle School (3)
- ❍ Specialty High School (i.e. Magnet, Vocational, Alternative) (4)

D3 Select the answer that best describes your school population.

- ❍ (799 or less) (1)
- ❍ (800 - 1399) (2)
- ❍ (1400 and above) (3)

Q1 PROFESSIONAL KNOWLEDGE: The teacher demonstrates an understanding of the curriculum, subject content, pedagogical knowledge, and the needs of students providing relevant learning experiences. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Knowledge of Curriculum (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Knowledge of Content Area (2)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Pedagogical Knowledge (3)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q2 INSTRUCTIONAL PLANNING: The teacher plans using state and local school district curricula and standards, effective strategies, resources, and data to address the differentiated needs of all students. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Content Specific State Standards (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Use of Available Resources for Instructional Planning (2)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Use of Data for Instructional Planning (3)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q3 INSTRUCTIONAL STRATEGIES: The teacher promotes student learning by using research-based instructional strategies relevant to the content to engage students in active learning and to facilitate the students' acquisition of key knowledge and skills. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Research-based Instructional Strategies (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Use of Instructional Strategies to Facilitate Instruction (2)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q4 DIFFERENTIATED INSTRUCTION: The teacher challenges and supports each student's learning by providing appropriate content and developing skills which address individual learning differences. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Use of Differentiated Instruction (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q5 ASSESSMENT STRATEGIES: The teacher systematically chooses a variety of diagnostic, formative, and summative assessments strategies and instruments that are valid and appropriate for the content and student population. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Diagnostic Assessments (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Formative Assessments (2)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Summative Assessments (3)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q6 ASSESSMENT USES: The teacher systematically gathers, analyzes, and uses relevant data to measure student progress, to inform instructional content and delivery methods, and to provide timely and constructive feedback to both students and their parents. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Assessment Feedback to Students (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Assessment Feedback to Parents/Guardians (2)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q7 POSITIVE LEARNING ENVIORNMENTS: The teacher provides a well-managed, safe, and orderly environment that is conducive to learning and encourages respect for all. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Safe and Orderly Instructional Environment (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q8 ACADEMICALLY CHALLENGING ENVIORNMENTS: The teacher creates a student-centered, academic environment in which teaching and learning occur at high levels and students are self-directed learners. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Student-Centered Academic Environment (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q9 PROFESSIONALISM: The teacher exhibits a commitment to professional ethics and the school's mission, participates in professional growth opportunities to support student learning, and contributes to the profession. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Commitment to Professional Ethics (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q10 COMMUNICATION: The teacher communicates effectively with students, parents or guardians, district and school personnel, and other stakeholders in ways that enhance student learning. Each of the following questions should be answered in two ways. First, rate your perceived importance for each standard, then provide a rating for competency. The left column indicates the importance of each standard. The right column indicates your level of competence (i.e. knowledge/ability) as it pertains to each standard.

	IMPORTANCE					COMPETENCE				
	Not Important (1)	Low Importance (2)	Somewhat Important (3)	Important (4)	Very Important (5)	Not Competent (1)	Low Competency (2)	Somewhat Competent (3)	Competent (4)	Very Competent (5)
Communication with Students (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Communication with Parents/Guardians (2)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Communication with District and School Personnel (3)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Appendix E: Valdosta State University Institutional Review Board Approval

Institutional Review Board (IRB)
for the Protection of Human Research Participants
PROTOCOL EXEMPTION REPORT

PROTOCOL NUMBER:	**03510-2017**	**INVESTIGATOR:**	**Mr. Charlie McAdoo**
		SUPERVISING FACULTY:	**Dr. Reynaldo Martinez & Dr. James Martinez**
PROJECT TITLE:	***The Identification and Prioritization of the Professional Development Needs for Teachers of Career, Technical, and Agricultural Subjects within Georgia Metropolitan Area School Systems.***		

INSTITUTIONAL REVIEW BOARD DETERMINATION:

This research protocol is **Exempt** from Institutional Review Board (IRB) oversight under **Categories 1/2**. Your research study may begin immediately at the school districts listed below. If the nature of the research study changes such that exemption criteria may no longer apply, please consult with the IRB Administrator (irb@valdosta.edu) before instituting any changes.

ADDITIONAL COMMENTS:

- *Your research study may begin immediately.*
- *Letters of Cooperation (LOC) have been received, authorizing you to conduct research at the school districts listed below.*
  - *Atlanta City School District*
  - *Decatur Career Academy*
  - *DeKalb County School District*
  - *Douglas County School District*
  - *Forsyth County School District*
  - *Fulton County School District*
  - *Marietta City School District*
  - *Rockdale County School District*

☒ ***If this box is checked, please submit additional documents to the IRB Administrator at irb@valdosta.edu to ensure an updated record of your exemption. ** Modifications of any sort must receive approval by the IRB Administrator prior to implementation.***

Elizabeth W. Olphie *08/16/2017*

Elizabeth W. Olphie, IRB Administrator Date

Thank you for submitting an IRB application.
Please direct questions to irb@valdosta.edu or 229-259-5045.

Revised: 06.02.16

Appendix F: Atlanta Public School System Research Approval

Office of Research & Evaluation
130 Trinity Ave., SW, 6th Floor | Atlanta, Georgia 30303

October 26, 2017

Research/Principal Investigator: Mr. Charlie E. McAdoo
Institution: Valdosta State University
Study Title: The Identification and Prioritization of the Professional Development Needs for Teachers of Career, Technical, and Agriculture Subjects within Georgia Metropolitan Area School Systems

Greetings,

Your request to conduct your research in Atlanta Public Schools has been **approved** by the Atlanta Public Schools (APS) Research Screening Committee.

Study description: "The purpose of the proposed study is to identify and prioritize the professional development needs of teachers of CTAE subjects in the metropolitan Atlanta region. Additionally, the study will provide an understanding of the relationship between teacher competency and the perceived level of professional development needed to meet or exceed the expected level of performance on the Georgia Teacher Assessment Performance Standards."

A few things to consider as you begin your research:

1. Please coordinate with the principals at your selected schools prior to starting research activities. This letter does not guarantee approval from school leadership.
2. The activities of this study must not interrupt instructional time.
3. This study must adhere to FERPA guidance.
4. Your assurance of maintaining confidentiality of the participants and the selected school must be adhered to, specifically, participant names, the name of the school and district must be masked.
5. Please submit a completed copy of the final research study to the Office of Research and Evaluation.

APS Research and Evaluation staff are available to answer questions regarding research policies and practices across the District. Please contact Curtis Grier at clgrier@atlanta.k12.ga.us if you need any further assistance.

Sincerely,

Mary Hartigan
Director – Research and Evaluation
Atlanta Public Schools

Appendix G: City Schools of Decatur Research Approval

DECATUR CAREER ACADEMY

Duane Sprul
Career and Technical Education Directo
City Schools of Decatu
310 N. McDonough Stree
Decatur, GA 3003

July 19, 2016

Charlie McAdoo II
Doctoral Candidate
Valdosta State University
1500 North Patterson
Valdosta, GA 31698

Dear Charlie:

I am aware of your research proposal and grant permission for you to use CTAE teachers' survey data for the purpose of your research, *The Identification and Prioritization of the Professional Development Needs for Teachers of Career, Technical, and Agriculture Subjects within Georgia Metropolitan Area School Systems*. You may contact me directly for questions and/or concerns.

Respectfully,

Duane Sprull

Appendix H: Dekalb County School System Research Approval

Dr. Knox Phillips
Associate Superintendent

DeKalb County
School District
www.dekalb.k12.ga.us

Dr. R. Stephen Green
Superintendent

Office of Accountability
Research, Data, and Evaluation
1701 Mountain Industrial Boulevard
Stone Mountain, GA 30083-1027
678-676-0300

February 5, 2018
Mr. C. McAdoo II
440 Princeton Way
Atlanta, Ga 30307

Reference: The Identification and Prioritization of Professional Development Needs for Teachers of Career, Technical, and Agricultural Education Subjects within Georgian Metropolitan Area School Systems (File # 2017-043)

Dear Mr. C. McAdoo II:

This letter is to inform you that your research proposal has been approved by the Office of Research, Assessments, and Grants for implementation in the DeKalb County School District (DCSD).

When you begin your research, you must secure the approval of the principal/chief site administrator(s) for all schools named in the proposal. You should provide the application with all required attachments and this district approval letter to the principal(s) to inform their decision. **Please remember the principal/chief site administrator has the final right of approval or denial of the research proposal at that site. In addition, note that teachers and others may elect not to participate in your research study, even though the district has granted permission.**

The last day to collect data in schools in DCSD for the 2017-2018 school year is Friday, March 30, 2018. The deadline is to protect instructional time during the assessment season and end of the year activities scheduled at individual schools. This approval is valid for one year from the date on this approval letter. Should there be any changes, addenda, design changes, or adverse events to the approved protocol, a request for these changes must also be submitted in writing/email to the DCSD Office of Research, Assessments, and Grants during this one-year approval period. Changes should not be initiated until written approval is received. Further, should there be a need to extend the time requested for the project; the researcher must submit a written request for approval at least one month prior to the anniversary date of the most recent approval. If the time for which approval is given expires, it will be necessary to resubmit the proposal for another review by the DCSD Research Review Board.

Completed results are **required** to be submitted to the Office of Accountability (Research, Data, and Evaluation).

Feel free to call 678.676.1113 or 678.676.0325 if you have any questions.

Sincerely,

Dr. Knox Phillips
Associate Superintendent

Dr. Joy Mordica
Assistant Director

Appendix I: Douglas County School System Research Approval

Douglas County School System

P.O. Box 1077 ~ Douglasville, GA 30133 ~ 770-651-2000 ~ www.douglas.k12.ga.us

Mr. Trent North, Superintendent

November 7, 2017

Charlie E. McAdoo II

Dear Mr. McAdoo II,

Permission is granted for you to conduct your research study. The title of your study is "The Identification and Prioritization of the Professional Development Needs for Teachers of Career, Technical, and Agriculture Subjects within Georgia Metropolitan Area School Systems." All information to be gathered will be done in a confidential and appropriate manner. The Douglas County School System is to receive a copy of all completed research findings.

Sincerely,

Mrs. Pam Nail
Chief Academic Officer
Student Achievement & Leadership

Leading and Learning

Appendix J: Forsyth County School System Research Approval

FORSYTH COUNTY SCHOOLS
Quality Learning and Superior Performance for All
Dr. Jeffrey Bearden, Superintendent • 1120 Dahlonega Highway • Cumming, Georgia 30040 •
Telephone 770.887.2461 • Fax 770.781.6632

January 19, 2018

Charlie E. McAdoo II
Adult and Career Education
Valdosta State University

RE: Research Study Approval*: The Identification and Prioritization of the Professional Development Needs for Teachers of Career, Technical, and Agricultural Subjects within Georgia Metropolitan Area School Systems.*

Dear Charlie:

This letter provides written approval for your above research study. As stated in your letter, participation should be considered voluntary and no students, staff members or schools will be identified in your report of the study. Your study sounds very interesting and I applaud your efforts of continued education. If I can provide additional information to support this approval, please be encouraged to contact me.

Sincerely,

Dr. Jeffrey Bearden
Superintendent

Appendix K: Fulton County School System Research Approval

Fulton County Schools
Where Students Come First

December 12, 2017

Dear Mr. McAdoo:

Your request to conduct the research study *"***Identifying and Prioritizing PD Needs of CTAE Teachers***"* has been approved. Enclosed is a copy of the Research Agreement. Please note that while this approval permits you to approach individual schools and/or teachers within the Fulton County School system, the final decision regarding participation is a local option and rests with each school principal and teacher. A copy of this letter must be provided to schools along with any correspondence requesting participation in this study.

No identification of Fulton County Schools (students' names, teachers' names, administrators' names, etc.) is to be included in data collected as a part of this study. Also, complete confidentiality of records must be maintained. Please remember to send a summary report once the study is complete to the address below. If any additional information or assistance is needed, please feel free to reach us at adamsja@fultonschools.org.

We appreciate your interest in conducting research with Fulton County Schools.

Sincerely,

Christian G. Northrup

Christian G. Northrup, PhD
Director - Program Evaluation and Research

Appendix L: Marietta City School System Research Approval

Marietta
city schools

Attachment E

APPLICATION TO CONDUCT
RESEARCH IN THE MARIETTA
CITY SCHOOL SYSTEM

DISPOSITION

Researcher Charlie E. McAdoo II

Title of Proposed Research Study *The Identification and Prioritization of Professional Development Needs for Teachers of Career, Technical, and Agricultural Education Subjects within Georgia Metropolitan Area School Systems*

Date Considered by the Administration and/or Marietta City Board of Education: _

Administratively or Board approved:

✓ Yes

____ No

Research proposal may be resubmitted for further consideration with the following criteria:

_____

_____

_____

_____

Rec'd 11-17-1

Appendix M: Rockdale County School System Research Approval

Rockdale County Public Schools
RCPS

Shirley Chesser
Interim Superintendent

Santana Flanigan
General Counsel

Board of Education
Wales F. Barksdale
Pamela J. Brown
Tony Dowdy
Heather Duncan
Jim McBrayer
Mandy M. North
Katrina P. Young

November 7, 2017

Mr. Charlie McAdoo II
440 Princeton Way
Atlanta, Ga. 30307

Dear Mr. McAdoo:

I have reviewed your research proposal; **"The identification and Prioritization of Professional Development Needs for Teachers of Career, Technical, and Agricultural Education Subjects within Georgia Metropolitan Area School Systems."** I have reviewed your project information and have approved it with the following conditions:

- All teacher interviews and teacher participation in focus groups must be on a voluntary basis during ***non-duty hours*** only.
- All resources and/or supplies will be provided by the applicant. (District resources will not be used.)
- Written authorization is required from the principal before conducting surveys.
- No individual participant(s) or school(s) will be identifiable through the research project.
- Due to the system's comprehensive academic program, research activities will be conducted during the following months unless special arrangements have been approved: **September - November AND February-April**

I wish you every success as you begin this very important project. I would appreciate a copy of the final report along with any recommendations that your research may offer Rockdale County Public Schools.

Please let me know if you have any questions.

Sincerely,

Laura Grimwade

Laura Grimwade
Director of Assessment & Accountability

C: Mary Ann Suddeth, Executive Director
Cathy Smiley, Director of Human Resources

954 North Main Street | Conyers, Georgia 30012 | Phone: **770-483-4713** | Fax: 770.860.4266 | **Rockdaleschools.org**