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THE IMPACT OF TEACHER CHARACTERISTICS ON A SECONDARY CAREER AND TECHNICAL EDUCATION PROGRAM IN MISSISSIPPI

By

Robin Ann Parker

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education
in Instructional Technology
in the Department of Instructional Systems, Leadership, and Workforce Development

Mississippi State, Mississippi

May 2008

THE IMPACT OF TEACHER CHARACTERISTICS ON

A SECONDARY CAREER AND TECHNICAL

EDUCATION PROGRAM IN MISSISSIPPI

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Pages in Study: 114

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This research was conducted to determine if characteristics of teachers impact student learning in the secondary career and technical education Allied Health program area. This research was conducted for the following reasons: (a) to determine if teacher participation in professional learning opportunities impact student learning, (b) to determine if the use of curriculum and instruction resources impact student learning, (c) to determine if the implementation of researched-based teaching strategies impact student learning, and (d) to determine if other characteristics impact student learning.

The data collected include responses from the fall 2007 MS-CPAS2 Allied Health student scores and survey responses from Mississippi Allied Health Teachers. This

survey included: (a) professional learning, (b) use of curriculum and instruction resources, (c) researched-based teaching strategies, and (d) teacher experience.

This study found that that students who had teachers who attended one to two face-to-face professional learning sessions had a higher student mean score on MS-CPAS2 tests than students who had teachers who attended three or more face-to-face professional learning sessions. Additionally, more Allied Health instructors are participating in face-to-face professional learning than online professional learning. Although a majority of the participants are not attending the data retreat sessions, those who attend have lower MS-CPAS2 scores than those who do not attend.

Recommendations were made to decision makers for future use of funds related to the development of curriculum and instruction materials and the development and implementation of professional learning opportunities. Some recommendations include: (a) creating incentives for teachers and administrators to participate more in online professional learning, (b) the curriculum framework created for secondary occupation-specific programs become a one-stop-shop for strategies that are proven to increase student learning, and (c) teacher licensure requirements should move from only requiring a two year associate's degree to a four year bachelor's degree.

DEDICATION

This document is dedicated to my husband, Vic Parker, who encouraged and supported me in more ways than I can count. It is also dedicated to my two beautiful daughters, McKinley and Taylor Shane, who have enriched my life more than I ever could imagine. I am so thankful for each of you.

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for never allowing me to forget the gifts that God has given me and showing me how to use them.

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To my two precious girls, Mac and Taylor Shane, thank you for showing me what life and love is all about and making me a better person. Thank you for teaching me how to laugh, play dress-up like beautiful princesses and cowgirls, and throw awesome tea parties. Above all, thank you for making bad days better with a kiss, a hug, or a smile. Always remember, I love you just the way you are!

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INTRODUCTION

When the *No Child Left Behind Act of 2001* (NCLB) (2002) was signed into law, educators at all levels were forced to begin examining results and implications of educational research. Because of an increase in accountability, teachers at all levels are required to base their instructional techniques on research-based strategies that have been proven to improve student learning. Research has shown that the most important factor affecting student learning is the teacher. Wright, Horn, and Sanders (1997) reported that more can be done to improve education by improving the effectiveness of teachers than by any other single factor. Additionally, educators have access to instructional delivery systems such Howard Gardner's theory of multiple intelligence (Ormrod, 2006). Gregory and Chapman (2002) indicated that all students have the ability to learn, they just learn in different ways. Medical technologies and neuroscientists now have the ability to identify physiological reasons for why some instructional strategies engage the brain better than others (Gregory & Chapman, 2002; Marzano, Pickering, & Pollock, 2001; Tate, 2003).

Career and technical educators have found themselves experiencing the same type of constraints academic teachers felt when NCLB (2002) was signed into law. Components of the federal legislation that funds career and technical education mirror the educational accountability components found in NCLB. Like academic teachers, career

and technical educators are now being held to accountability standards which are forcing them to implement classroom instructional practices that are proven to increase student learning. Because of the increased accountability requirements by the new legislation, This sort of investigation is absent in the field of career and technical education; thus, it is important to expand the body of research to include an examination of career and technical educators' participation in professional learning, their use of curriculum and instruction resources, their use of researched-based instructional strategies, and other teacher characteristics that may affect student learning in career and technical education.

Literature Review

To understand the impact of teacher characteristics on Mississippi's career and technical education programs, the research literature related to these characteristics, such as participating in professional learning, the use of curriculum and instruction resources, the use of researched-based instructional strategies, and other teacher characteristics that are proven to increase student learning are discussed. In this section, the research literature related to student learning, accountability in career and technical education, and teacher characteristics are discussed.

Student Learning

The National Staff Development Council (2007) web site quotes Alvin Toffer as saying, "The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn" (¶ 20). Some learning theories, such as behaviorism, focus on how people's behavior changes over time and on how

environmental conditions bring such changes about. Other theories, such as the information processing theory, focus on internal mental processes, such as thinking, rather than observable behaviors. In order to understand variables that may impact student learning, one must first understand student learning.

Increased scrutiny about student learning outcomes seems ever-present at a time when all levels of education (elementary, secondary, postsecondary junior/community colleges, and universities) and accreditation agencies are still grappling with identifying the best measures of student learning. Sullivan and Thomas (2007) identify student learning outcomes as the knowledge, skills, and abilities that a student has attained at the end (or as a result) of the student's engagement in a particular set of education experiences.

Ormrod (2006) indicated that there are two categories of evaluation that are used to measure student learning. Evaluations of student learning conducted before or during instruction to enhance students' learning is known as formative evaluation. Evaluations conducted after instruction to determine students' final achievement is known as summative evaluation. Furthermore, Ormrod indicates that summative evaluations consist of criterion-reference assessment instruments which indicate mastery or non-mastery of specific topics and norm-referenced assessments which compare student performance to that of peers.

N. Webb (personal communication, January 22, 2008) indicates that student learning can be categorized into four levels: (a) Level 1: Recall, which includes a student's recalling a fact, a definition, term, or a simple procedure; (b) Level 2:

Skill/Concept, which includes a the engagement of some mental process beyond habitual response or which requires students to make some sort of decision as to how to approach a decision or solve a problem; (c) Level 3: Strategic Thinking, which requires reasoning, planning, using evidence, thinking at a higher than the previous two levels and, in most instances, requiring students to explain their thinking; and (d) Level 4: Extended Thinking, which requires complex reasoning, planning, developing, and thinking most likely over an extended period of time. Levels 1 – 3 are testable in a summative test while Level 4 is only assessable in a formative test. The Mississippi Department of Education (MDE) has adopted Norman Webb's four levels of Depth of Knowledge and has all state-wide assessment aligned to the four definitions.

For the purpose of this study, student learning is defined as a relative permanent change, due to experiences, either in behavior or in mental representations or associations. This definition is based on Ormrod (2006). Additionally, student learning is measured by students' achievement on a criterion-referenced, summative evaluation for the purpose of this study.

Accountability in Career and Technical Education

NCLB (2002) is founded on basic principles: (a) stronger accountability by guaranteeing an increase in student learning results; (b) increased flexibility by giving local school districts control over federal funding as long as accountability requirements are met; (c) researched-based reforms by encouraging schools to move from unreliable and untested methods that actually impede academic progress to using evidence-based

teaching practices that are proven to increase student learning; and (d) increased options for parents by giving them information regarding not only how their child is achieving academically, but also how their school and school district are performing as well. Turner (2006) noted that there are many fresh and exciting elements that align the newly revised legislation that funds Career and Technical Education, the Carl D. Perkins Career and Technical Improvement Act (2006) (Perkins IV), with NCLB legislation.

According to Turner (2006), the Perkins IV legislation indicates that local career and technical schools must meet six core indicators for performance: (a) student attainment of challenging academic content standards; (b) student attainment of career and technical proficiencies that are aligned with industry-recognized standards; (c) student rates of attainment of a secondary school diploma, General Education Development (GED) credential or equivalent, or a proficiency credential, certificate, or degree in conjunction with a secondary school diploma; (d) student graduation rates; (e) student placement in postsecondary education, in military service, or in employment; and (f) student participation in and completion of career and technical education programs that lead to nontraditional fields.

Turner (2006) indicated that the most challenging component of the new law is the requirement regarding accountability and program improvement. Although accountability is not foreign to CTE teachers, the former Carl D. Perkins Act of 1998 legislation focused on accountability at a state level (Hall & Marsh, 2003), while the reauthorization of Perkins IV in 2006 focuses on increased accountability at the local program and district level (Turner).

NCLB and Perkins IV are very similar in their requirements for accountability. State departments of education use standardized tests as a way to evaluate the quality of education in school districts. Standardized tests provide data on a large number of students at relatively low cost. Accountability requirements found in Perkins IV (2006) relied heavily on the results of standardized tests. In Mississippi, the occupation-specific indicator is measured by the Mississippi Career Planning and Assessment System, Edition 2 (MS-CPAS2). This assessment is used to establish accountability for student attainment of career and technical proficiencies that are aligned with industry-recognized standards (Research and Curriculum Unit, 2007).

Teacher Characteristics

The purpose of this section is to examine the relationship between teacher characteristics and student learning. The following teacher characteristics will be examined in detail: (a) professional learning and how it relates to student learning, (b) the teacher's use of curriculum and instruction resources, (c) the impact of research-based instructional strategies on student learning, and (d) the impact of teacher experience on student learning. Research implies that there may be a relationship between student learning and the items listed above.

Professional Learning

Research indicates that there is a direct relationship between teacher quality and student learning (Darling-Hammond & Berry, 2006). Zepeda (2006) reported that because more emphasis is being placed on student learning and teacher quality,

educational administrators are rethinking professional learning to include activities such as mentoring, peer coaching and assistance, faculty study groups, and portfolio development. Researchers and practitioners disagree on the ways in which professional learning experiences need to be structured in order to foster and develop critical teacher traits that will positively impact student learning (Lasley, Siedentop, & Yinger, 2006).

Currently, career and technical educators in Mississippi have the opportunity to complete face-to-face and online professional learning opportunities. A research-based evaluation report has not been compiled to determine if the successful completion of these professional learning opportunities has a positive effect on student learning as measured by students' achievement on a criterion-reference, summative evaluation (P. Abraham, personal communication, March 1, 2007).

The focus of powerful professional learning should be on what is happening with the learners in the classroom (Easton, 2006). Love (2004) stated that there is a substantial amount of data being collected. The trick for educators is understanding how to use it effectively to improve instruction. The Mississippi Assessment Center (MAC) offered professional learning opportunities for career and technical educators to understand how to read, understand, and analyze MS-CAPS2 reports. During this face-to-face professional learning session, teachers were grouped by program areas where an assessment specialist discussed how teachers can effectively modify instruction based on the MS-CPAS2 test results. Additionally, teachers learned about resources provided by the MAC, such as MS-CPAS2 practice tests, that are available to teachers to use in their classrooms to better prepare students for this end-of-program assessment.

CTE teachers also have the opportunity to complete the National Board for Professional Teaching Certification, also known as National Board Certification. The National Board for Professional Teaching Standards (2007) web site indicates that 7,800 teachers achieved National Board Certification in 2006, bringing the total to more than 55,000. In Mississippi alone, 184 teachers were certified in 2006, bringing the total to 2,555. Vandevoort, Amrein-Beardsley, and Berliner (2004) published a white paper stating that teachers who completed the national board certification process were better qualified in promoting academic achievement to those who did not complete the process. It is not clear if teachers who complete the national board certification process have a greater impact on student learning in occupation-specific programs.

The Early Adolescence through Young Adulthood/Career and Technical Education certificate is appropriate for teachers who teach career and technical information subjects to students between the ages of 11 and 18 and who know industry-specific subject matter. Participants are required to select one of eight specialty area clusters which include Agricultural and Environmental Sciences; Arts and Communications; Business, Marketing, Information Management, and Entrepreneurship; Family and Consumer Sciences, Health Services; Human Services; Manufacturing and Engineering Technology; and Technology Education. In order to gain this certification, participants must develop a portfolio documenting that all standards of the program were met and successfully complete an assessment that evaluates participants' knowledge and understanding of career and technical education content (National Board for Professional Teaching Standards, 2007)

Use of Curriculum and Instruction Resources

Learning to teach well is difficult work. Managing a classroom full of students, deciding what content to cover, effectively designing and implementing lesson plans, accurately assessing student learning, and adjusting to students' needs are difficult tasks that are expected of all teachers in today's classroom. Teachers need support to develop and carry out the necessary knowledge and skills related to their curriculum. The curriculum framework and other instructional resources are sources that teachers can draw upon and play an important role in teacher development and student learning (Kauffman, Johnson, Kardos, Liu, & Peske, 2002). Surdey and Hashey (2006) report that student learning increases when educators increase their focus on curriculum and standards. The MS-CPAS2 exam is developed based on content from the state-wide curriculum framework. Both documents are aligned to national standards.

The RCU developed the secondary state-wide curriculum framework for all career and technical educators. The curriculum framework includes competencies, suggested objectives, suggested teaching strategies, and suggested assessment strategies. A list of national and academic standards along with references is listed at the end of each unit.

The curriculum process begins with an Instructional Design Specialist (IDS) who researches trends, issues, industry certifications, and standards in the area of the curriculum to be revised. After this research is compiled, updates to the original curriculum document are made. Then, a team of secondary teachers meet to write the competencies, objectives, and teaching and assessment strategies. This team is selected based on a set of criteria that include high MS-CPAS2 scores, involvement in

professional learning, involvement in teacher professional organizations, and recommendations from local and state education leaders. Not only does this team develop teaching and assessment strategies that are included in the state-wide framework, but some are chosen to update the MS-CPAS2 test items and add resources related to the teaching and assessment strategies to a website called Blackboard® Resource & Instructional materials Designed by Great Educators (B.R.I.D.G.E.). The primary purposes of this site are to host high-quality lesson plans and resources related to the curriculum framework and to serve as a tool that teachers can use to enhance their learning community (Research and Curriculum Unit, 2007). Through the site, teachers have the ability to communicate via the discussion board and e-mail, read announcements from state and teacher leaders, and download high-quality lesson plans and other instructional aids such as classroom activities, sample unit tests that were created by teachers in the field, multimedia presentations, and links to web-based resources. Teachers also have an opportunity to add to the lesson plans through face-to-face and online professional learning opportunities.

M. Bowen (personal communication, December 10, 2007) stated that it takes approximately $5,000, not including the salary and benefits of each IDS who coordinate and perform most of the work in curriculum development, to develop the curriculum and B.R.I.D.G.E. resource. Training teachers how to implement the curriculum costs approximately $500 per teacher. The RCU and the MDE spend much time and many resources to develop these resources for teachers, and there has been no true evaluation of the use of curriculum and resource materials or their impact on student learning.

Researched-Based Instructional Strategies

It was once asked,

> Why is it that I have many choices of how to view a movie–by watching it on broadcast, cable, or satellite television; renting a videotape or DVD; going to the theater or to a friend's house–but I only have one way to learn about American history–by reading a book? (Edyuburn, 2006, p. 20)

Twenty-first Century classrooms must include multiple research-based instructional strategies that can be used to facilitate student mastery of content (Marzano et al., 2001). The 21st Century economy requires highly skilled, adaptable, and innovative workers who are prepared to learn continuously. Therefore, secondary education students need to be lifelong learners who are prepared for the changing global economy, whatever their career and education goals may be (Hyslop, 2006).

Federal legislation encourages educational researchers to begin examining instructional practices that have been proven to increase student learning. A summary of selected strategies are discussed below. These specific strategies were included in this research because they continuously appeared in research dedicated to teaching strategies that were proven to increase student learning.

Identifying Similarities and Differences. A **s**tudent can understand new and complicated concepts when those concepts are compared to dissimilar ones that the student already knows and understands (Tate, 2003). Marzano et al. (2001) indicated that identifying similarities and differences increases student achievement. Identifying similarities and differences involves having students explain how items, events,

processes, or concepts are similar or different. Students can accomplish this in a variety of ways, including comparing, classifying, creating metaphors, and creating analogies (Gregory & Chapman, 2002; Marzano et al.). Students who spend time looking at the similarities and differences between two different topics deepen their understanding and the ability to use the knowledge (Gregory & Chapman). High school students' use of metaphors is a powerful tool for reflection and this teaching strategy allows students to express their understanding of high school chemistry content. The use of analogies in the education environment promotes higher order learning and increases depth of knowledge (Carney & Levin, 2003). When students are able to use metaphors, analogies, or other methods of comparing and contrasting unrelated items, they are able to link abstract, difficult-to-understand concepts with personal experiences and promote a sense of creativity (Tate, 2003; Whitin & Whitin, 1997).

Lectures and Notetaking. To effectively take notes, students must make a determination as to what is most important and then state the information in a parsimonious form. Verbatim notetaking is the least effective way to take notes (Marzano et al., 2001). In an experimental research study, Titsworth (2001) investigated the effects of student's use of organizational cues and student notetaking on student learning. The researcher found that university student learning increases when they are required to take handwritten notes from a lecture. The researcher also found that student learning increases more when students who take handwritten notes are given cues by the instructor such as, "The second theory I will discuss…" Additionally, a study published by Kiewara and Mayer (1997) revealed that student learning increases when university students use

cues and teachers created organizational structures. University students perform best on post-lecture testing when they review a combination of provided notes from their instructor and their personal notes, particularly if the provided notes follow a cued format that encourages active notetaking (Morrison, McLaughlin, & Rucker, 2002).

Brainstorming. Secondary student comprehension and higher order thinking skills improve when students are given the opportunity to brainstorm ideas without criticism, to discuss options, to debate controversial issues, and to answer questions at all levels of Bloom's taxonomy (Tate, 2003). The International Center for Leadership in Education (2002) states that brainstorming is a great way to determine students' prior knowledge about a topic and it can excite students involved when learning new material. When brainstorming, students generate many ideas related to a topic, analyze their thoughts, and then refine those ideas into information. Student learning increases when learners are asked questions that require them to think beyond the knowledge and application level of learning (Tate, 2003). The ability to ask questions allows students to be creative, to imagine beyond what is given, and to search for missing information (Harpaz & Lefstein, 2000).

Cooperative Learning. Very few tasks in the world of work are completed in isolation. To prepare for work in the 21st century, students must have opportunities to work and learn in a team-like environment (Casner-Lotto & Benner, 2006). Cooperative learning refers to small, heterogeneous groups of students working together to achieve a common learning goal and a collaborative relationship among participants. This teaching strategy has been successful with students of all ages, learning styles, and ethnic

backgrounds (Godwin, 1999). In cooperative learning groups, learning opportunities are structured so that each student is not only individually accountable for mastery of the content, but he or she is also concerned about the performance of all group members (Tate, 2003). Leon and Tai (2004) found that university students who completed projects using cooperative learning learned significantly more than when they worked on projects individually. In a study of middle school students, performance on weekly quizzes was significantly improved following cooperative learning and reciprocal peer tutoring (Malone & McLaughlin, 1997).

It is important to consider grouping methods when implementing the cooperative learning teaching strategy in the secondary classroom. When given the opportunity to choose group members, secondary students feel obligated to choose friends as group mates and low achieving students question the value of working with other low achieving students. Heterogeneous grouping by ability level allows lower performing students the benefit from scaffolding instruction from more capable peers (Mitchell, Reilly, Bramwell, Solnosky, & Lilly, 2004).

Nonlinguistic Representations. Nonlinguistic representations allow students to represent knowledge they have learned. Graphic organizers such as a Venn diagram, a flow chart, or a table can be used to enhance the learning process. Tate (2003) cited Dunston as stating that 10 years of research indicate that graphic organizers constructed before reading facilitate comprehension for elementary students while graphic organizers constructed after reading result in improved vocabulary and comprehension scores for secondary students. Forms of advanced organizers make thinking visible to students.

Additionally, graphic organizers provide connections among bits of information, making information easier to remember and allowing students to break information into meaningful chunks (Tate). Nonlinguistic representations are useful thinking tools that allow students to organize information and see their thinking; thus, they are especially helpful with students who have the visual special and logical mathematical learning style (Gregory & Chapman, 2002) .

Problem-based Learning. When learning is linked to real-life experiences, students retain and apply information in meaningful ways. Problem-based instruction links new information to previously stored information that enables students to realize that they already have some knowledge about the new topic and that the activity is relevant to their personal lives (Westwater & Wolfe, 2000). Problem-based learning involves multiple learning strategies and allows students to use critical thinking skills to investigate and solve real-world problems (International Center for Leadership in Education, 2002). When engaged in problem solving, students are required to generate and test hypotheses related to the varying solutions they propose. These learning experiences result in divergent thinking and exploring possibilities (Marzano et al., 2001).

Simulation/Role-playing. This instructional strategy replicates the way knowledge is used outside of school. Simulations may be used to excite students about the learning task, to build skills related to the learning task, or as a culminating project (International Center for Leadership in Education, 2002). Simulations and role-playing provide students with the opportunity to organize information, create or re-create

meaningful situations, and use their verbal and interpersonal skills. Additionally, this teaching strategy increases the opportunity for understanding and retaining information (Gregory & Chapman, 2002).

Field Trips. Field trips provide students with real-world experiences that make the subsequent learning more understandable and memorable. In the 21st century, virtual field trips are available for students to visit places that would otherwise be inaccessible or cost prohibitive (Tate, 2003). When students engage in out-of-school activities, such as field trips, they should reflect upon the experiences and relate the experience to academic standards (International Center for Leadership in Education, 2002).

Technology. The International Center for Leadership in Education (2002) reported that using technology in classroom instruction has a high degree of visual reality and interactivity that offers students an opportunity to develop a depth of understanding of complex concepts in a much shorter time than would be possible through traditional instruction. Additionally, technology motivates students achieve to high levels of skills and knowledge. Tate (2003) stated that technological advances have revolutionized all aspects of our lives including how educators teach and students learn. The Partnership for 21st Century Skills (2006) indicated that information and communication literacy is essential for success in the real world of work. Tate wrote that the instructional strategy of technology is not optional, but a necessity to prepare students for present and future occupational success. Cradler (2003) reported that in order to integrate effectively technology, educators must ensure that all technology-based instruction and resources are aligned with academic standards.

Writing and Journals. The Partnership for 21st Century Skills (2006) reported that writing is one of the basic skills essential for success in a 21st century workplace. Writing and journaling are good ways for students to organize their knowledge and reinforce concepts. Writing is also an effective way to measure student's understanding of concepts (International Center for Leadership in Education, 2002). Writing can involve completing works using the writing process which consists of prewriting, writing, proofreading, revising, and rewriting. It can also involve quick writes that enable students to use crucial skills in a multitude of cross-curricular ways for short periods of time (Tate, 2003). Tate cites Markowitz and Jensen (1999) as stating that writing down an account of an experience in a journal, log, or diary has been seen as the best way to remember detail.

Demonstration/Guided Practice. Guided practice is most often associated with the traditional classroom. When using this instructional strategy, educators introduce and demonstrate concepts through the used of examples. After the demonstration, students are given additional problems to practice the operation. When using this strategy, teachers provide individual guidance to students to ensure they are able to follow sequential steps (International Center for Leadership in Education, 2002).

Visuals. Bull and Bell (2005) reported that content can best be learned and understood by incorporating digital images into instruction. Because of different learning styles and multiple intelligences, some students may have difficulty understanding new information if it is presented only verbally. Visuals such as maps in geography, microscopic images in biology, star fields in astronomy, and graphical images in mathematics are some of the common examples of using visual images as an instructional

strategy. Multiple representations of new concepts can facilitate understanding by all students and can be particularly useful for visual learners (Bull & Bell; Gregory & Chapman, 2002).

Work Study/Apprenticeships. The International Center for Leadership in Education (2002) reported that by engaging students in real-world tasks, students have the opportunity to use language skills, creativity, higher-order thinking skills and previous knowledge. This group reported that work-study or apprenticeships require extensive planning by the teacher to ensure that students are not completing simple routine work. Additionally, students should be engaged in activities that are related to learning competencies and objectives.

Drawing and Artwork. Rotbain, Marbach-AD, and Stavy (2005) reported that using drawing-based instructional strategies enhanced high school students' understanding of major, complex topics. The International Center for Leadership in Education (2002) reported that using creative arts in the classroom is an excellent way to nurture student individual talents while helping them learn through application. Jenson (2001) reported that students enrolled in visual arts programs consistently report gains in 21st century skills such as self-discipline, work ethic, and teamwork. Additionally, drawing figures helped improve critical thinking and verbal skills in learning-disabled students (Silver, Strong, & Perini, 2000). Based on test results, students who took studio art, art appreciation, and art design scored 47 points higher on the mathematics and 31 points higher on the verbal portion of college entrance exams than did those who were not enrolled in visual arts classes (Tate, 2003).

Games. Kolpfer and Yoon (2005) reported that "research on the topic of games and learning has shown that constructing playful learning experiences can build understanding" (p. 40). Tate (2003) reported that games increase motivation and, in turn, increase student learning. Allowing learners to redesign games that they already know, such as Wheel of Fortune or Jeopardy!, provides the brain connections necessary for better understanding of the alternative content. Basically, learners are activating their brain when they play games (Jenson, 2000).

Reciprocal Teaching. The Society of Developmental Education (1995) reported that we learn 90% of what we teach others. Reciprocal teaching gives students opportunities for students to teach and learn from one another. Peer tutoring, a form of reciprocal teaching, can promote learning at virtually all grades and school levels (Glasgow & Hicks, 2003). When achievement tests were administered before and after a peer tutoring program, students who participated in a peer tutoring program who were average or low achievers, with or without learning disabilities, achieved at higher levels than those who did not participate in a peer tutoring program (King, Staffieri, & Adelgais, 1998).

Summary. Research is very clear that the research-based instructional strategies discussed above enhance student learning in all academic subject areas at all grade levels (Marzano et al., 2001). What is unclear is determining if these strategies will also be effective in secondary career and technical occupational program.

Other Teacher Characteristics

This study examined the following characteristics: (a) teaching experience, (b) occupational experience, (c) education level, and (d) teacher certification.

Teaching Experience. Egyed and Short (2006) reported that classroom experience is a primary characteristic of effective teachers. Experienced teachers are more equipped with extensive pedagogic skills and are also better managers of classroom problems and student learning. Wray, Mendwell, Fox, and Poulson (2000) stated that teachers with more teaching experience are likely to use their planning time more wisely because more experienced teachers are more likely to perform complex procedures in a fraction of the time taken by novices. Glasgow and Hicks (2003) reported that teachers do not truly learn their craft until they have been teaching at least five to six years. They go on to say that it takes longer for novice teachers to experiment with and adapt the rules and procedures they must employ in their classrooms, to develop and refine lesson plans, and to embrace a sense of community and camaraderie with their students and colleagues.

Industry Experience. Effective teachers not only have a strong knowledge of teaching skills and pedagogical concepts, but they also have strong subject knowledge (Campbell, Kyriakides, & Robinson, 2003). L. Long (personal communication, February 24, 2007), an expert in career and technical teacher licensure issues stated that Mississippi career and technical educators may be able to attribute their subject knowledge to the completion of a related career and technical secondary or postsecondary program or certificate and industry experience. Currently, teachers who have a high school diploma or equivalency certificate, or an associate's degree, a bachelor's degree,

or higher degree have the opportunity to complete the Vocational Instructor Preparation (VIP) program, an alternative certification route for Mississippi CTE teachers, and teach in Mississippi's secondary career and technical education programs. Licensure requirements state that the higher the level of education a teacher has, the less industry experience the teacher needs for certification. Research has not been completed to determine if the teacher's level of classroom experience or work experience has an impact on student learning in a Mississippi secondary career and technical education programs (L. Long, personal communication).

Teacher Education Level. Research in the area of teacher education level is conflicting. In a study published by Cakir (2006), teacher education level did not have a statistically significant difference on student learning in career and technical education across the United States. In a study that examined the teacher education level of Mississippi Allied Health teachers, results showed that student achievement was higher in classrooms where teachers held bachelor's degrees or higher levels of education (Jarvis, 2006). Wright, Horn, & Sanders (1997) report that students who have teachers with advanced degrees and majors in related subjects grow academically more than students whose teachers without those attributes.

Teacher Certification. Mississippi's career and technical educators must have a three-year, vocational educator license or a five-year standard teacher license in order to be certified to teach in Mississippi school districts. There are two ways for teachers to meet this requirement: (a) obtaining a baccalaureate degree in a traditional teacher

education program from an accredited university or (b) alternative route certification (Research and Curriculum Unit, 2007).

Prior to 2003, career and technical education teachers could earn a standard vocational educator license by meeting certain requirements established for such licensure. Although some vocational subject fields had slightly differing requirements, they all consisted of (a) earning a high school diploma or a high school equivalency certificate such as the GED, or higher; (b) possessing years of verifiable occupational experience, related to the subject area being taught, within the past ten years; and (c) completing a planned program of study as specified by the dean of vocational and/or technical education at Alcorn State University, Mississippi State University, or the University of Southern Mississippi. The planned program of study consisted of six teacher education courses; however only three courses were required if the applicant had earned a bachelor's degree. Upon the completion of all licensure requirements, teachers were expected to complete the proper paperwork to gain a standard, five-year vocational educator license (Research and Curriculum Unit, 2007).

In April 2003, the Mississippi Board of Education required all alternative route vocational teachers to complete the VIP program. At this time, licensure requirements were modified to include: (a) Participants utilize a professional development team to help them make the transition into the teaching profession and to assure that the goals and objectives of the program are accomplished; (b) Participants, with their team, prepare a professional development plan that is individualized by taking into consideration variation in education and occupational experience; (c) Participants have the option of

completing teacher education modules from Mississippi State University or courses from Alcorn State University, Mississippi State University, or the University of Southern Mississippi; and (d) The professional development team is responsible for monitoring and reporting progress of the candidate being inducted into the profession (Long, 2006).

Traditional teaching education programs and the VIP program are both based on the National Council for Accreditation of Teacher Education (NCATE) Professional Standards for the Accreditation of Schools, Colleges, and Departments of Education. These standards were established to prepare educators to work effectively in P-12 schools. They provide direction for programs, course teaching, candidate performance, scholarship, service, and unit accountability. The alternative route certification prior to 2003 was not based on NCATE standards.

Summary

Many research-based publications indicate that teacher preparation programs, teacher's participation in professional learning, teacher experience, and teacher national board certification have a direct effect on student learning. Research has not been conducted to determine which teacher characteristics, if any, effect student learning in Mississippi's career and technical education programs as measured by criterion-referenced, summative evaluation.

Statement of the Problem

Perkins IV (2006) requires local career and technical education programs to meet at least 90 percent of any performance measure for any core performance indicator.

Career and technical education programs that fail to meet this requirement will be placed in school improvement status or risk losing a portion of federal funding. The loss of federal funding will result in the loss of career and technical education programs. The Mississippi Department of Education is using the MS-CPAS2 as an accountability tool to measure the student attainment of career and technical proficiencies that are aligned with industry-recognized standards and core performance indicators. Because of increased accountability for career and technical education programs, career and technical education teachers must base their classroom instruction on research-based instructional strategies that are proven to increase student learning. Marzano et al. (2001) reported that, although research has taught us a great deal regarding instructional strategies that are proven to increase student learning, more research must be completed in order to determine if some instructional and assessment strategies are more effective in certain subject areas.

Additionally, because of increased expectations for teacher performance and limited resources such as time and money, state and local leaders must examine other characteristics, such as participating in professional learning, the use of curriculum and instructional materials, and other teacher characteristics to see if there is an impact on student learning. This study will investigate the effects of teacher characteristics on student learning in career and technical education as measured by students' achievement on a criterion-referenced, summative evaluation.

Purpose

Cannon (2006) reported that there must be a greater collaboration between teachers and researchers in order to implement best practices in the classroom. The purpose of this study was to determine if the following teacher characteristics impact student learning in secondary career and technical education Allied Health program areas. Teacher characteristics include (a) professional learning as it relates to student learning, (b) the use of teacher's use of curriculum and instruction resources, (c) the impact of research-based instructional strategies, and (d) the impact of other characteristics on student learning. Secondary career and technical education instructors will be able to use information from this study to modify instructional techniques and improve student learning in their classrooms.

Justification of Study

The Perkins IV Act (2006) increases accountability for student learning in secondary CTE programs. Because secondary CTE teachers are held accountable for student learning based on a third party, valid, and reliable test, they must base their daily instruction on research-based instructional and assessment strategies. Specific instructional strategies increase student learning in the elementary and secondary academic classrooms, but there is a lack of research regarding the impact of specific instructional strategies in secondary career and technical education classrooms. Furthermore, it is important to evaluate the impact other teacher characteristics, such as teacher experience, education, teacher preparation programs, and participation in

professional learning has on student learning in career and technical education. This research study is the first attempt to compare the teacher characteristics of CTE teachers to MS-CPAS2 program area scores. Results from this study will provide information for administrators at the state level to make decisions about curriculum and instruction. Furthermore, it is important to evaluate the impact of other teacher characteristics, such as teacher experience, type of teacher preparation program, and participation in professional learning, have on student learning in CTE.

This study is a model study that will eventually be disseminated to all Mississippi Career and Technical Educators. The data collection instrument and research procedures will be revised if needed in order to implement with all Mississippi CTE teachers in all Mississippi CTE programs as a result of this research. With that in mind, it was desirable to choose a group of instructors as participants of this study who best represented the population of Mississippi CTE educators. Allied Health teachers were chosen because they were the group of Mississippi Career and Technical Educators who best represented the population in all independent variables of the study.

Research Questions

The present study investigated the following research: Do teacher characteristics impact Mississippi vocational and technical program MS-CPAS2 scores? To help answer the research question, these four specific related questions were addressed.

1. Does teacher participation in professional learning opportunities impact Mississippi Allied Health program MS-CPAS2 scores?

2. Does teacher use of curriculum and instruction resources impact Mississippi Allied Health program MS-CPAS2 scores?
3. Does teacher implementation of researched-based teaching strategies impact Mississippi Allied Health program MS-CPAS2 scores?
4. Do teacher characteristics impact Mississippi Allied Health program MS-CPAS2 scores?

Definition of Terms

Alternative teacher certification – Alternative Teacher Certification is a license that is awarded to someone who has not earned a traditional bachelor's degree in education or a traditional teacher certification, but still possess a four-year degree from an accredited college or university.

Career and technical education – The Carl D. Perkins Act (2006) defines career and technical education as organized educational activities that provide individuals with coherent and rigorous content which is aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions. Additionally, career and technical education provides technical skill proficiency, an industry-recognized credential, a certificate, or an associate degree.

Postsecondary career and technical education program – The Carl D. Perkins Act (2006) defines postsecondary career and technical institutions as institutions of higher education that provide not less than a 2-year program of instruction that is acceptable for credit

toward a bachelor's degree. A postsecondary career and technical education program is a 1- or 2-year program of study that leads to a certificate or an associate's degree. Upon the completion of a postsecondary career and technical program, students have the opportunity to enter the workforce or to transfer to an institution of higher learning for continued study.

Research-based instructional strategy – A researched-based instructional strategy teaching strategy that has been proven to increase student learning through multiple scientifically-based research study.

Secondary career and technical education program – A secondary career and technical education program is a two year program offered to 9^{th} – 12^{th} grade students. The program can be located at a high school or a career and technical center.

Secondary career and technical education program teacher – This is a teacher of a two year career and technical education program offered to 9^{th} – 12^{th} grade students. The program can be located at a high school or a career and technical center.

Mastery learning - Mastery Learning is an instructional method that presumes all children can learn if they are provided with the appropriate learning conditions. Specifically, mastery learning is a method whereby students are not advanced to a subsequent learning objective until they demonstrate proficiency with the current one.

Mississippi Career Planning and Assessment Systems, Edition 2 (MS-CPAS2) – The Mississippi Assessment Center (MAC) at the Research and Curriculum Unit (RCU) at Mississippi State University provides the MS-CPAS2 Occupation-Specific Assessments used to evaluate vocational program effectiveness.

CHAPTER II

METHODOLOGY

The methods used to address the research questions found in Chapter I will be discussed in this chapter. This chapter includes (a) the research design, (b) the participants, (c) the measuring instruments, (d) the materials, (e) the procedure, and (f) the data analysis.

Research Design

Figure 2.1 is a visual representation of how this study was organized. To determine possible causes of differences between student MS-CPAS2 program scores, a causal-comparative research design was used. Fraenkel and Wallen (2003) explained that interpretations of causal-comparative research are limited because the research cannot say decisively whether a particular factor is a cause or a result of the behavior(s) observed. However, causal-comparative research studies are of value in identifying possible causes of observed variations in the behavior patterns of student learning. Johnson (2001) indicated that non-experimental research, such as causal-comparative studies, is important and appropriate in educational settings. The magnitude and direction of the

correlations will show relationships that might be investigated and considered by Mississippi career and technical educators who seek to improve their program MS-CPAS2

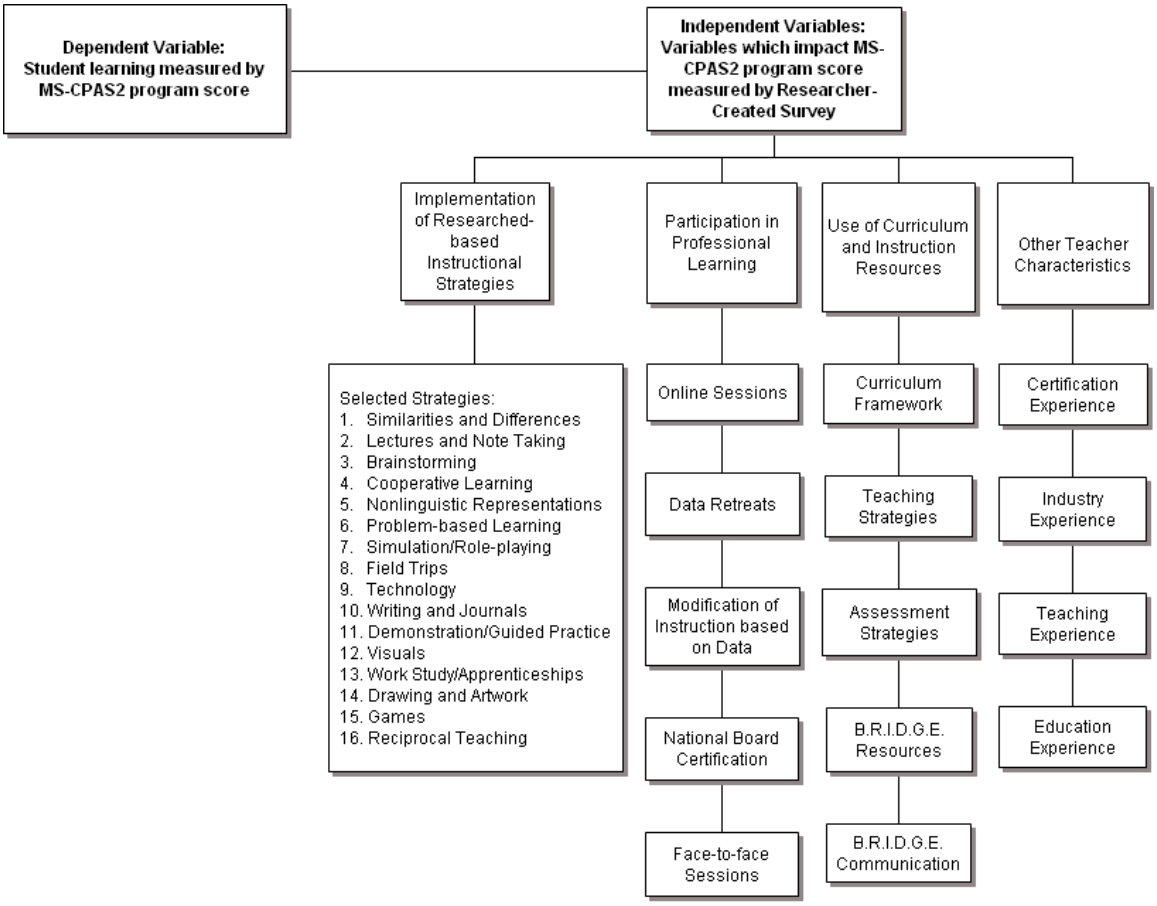

Figure 2.1

Picture of Study

This study was designed to determine what teacher characteristics impact student learning in Mississippi career and technical education courses. It was to determine if participating in professional learning, the use of curriculum and instructional resources,

the use of researched-based instructional strategies, and teacher experience impact secondary vocational and technical program MS-CPAS2 scores.

In this study, the researcher compared program area MS-CPAS2 scores, the dependent variable, to the independent variables which consist of variables which may impact MS-CPAS2 program scores. The independent variables in this study are teacher characteristics. Teacher characteristics include participation in professional learning, use of curriculum and instruction resources, use of strategies, and other teacher characteristics such as teaching experience, industry experience, teacher certification, and highest degree held.

Participants

This study consisted of 99 secondary Allied Health instructors from Mississippi. Ten Allied Health teachers were classified as new teachers; therefore, they were not invited to participate in the study. The remaining 89 participants were given the opportunity to participate in the study. All Allied Health teachers taught in public high schools or career and technical education centers. The Allied Health program was selected because this group represents all areas of the teacher characteristics represented in this study.

Informed Consent

The researcher submitted a request to conduct the study in April of 2007 to the Mississippi State University Institutional Review Board (IRB) for the Protection of Human Subjects in Research. Approval memos were granted (Appendix A). M.

Mulvihill, the director of Compliance and Reporting in the Office of Vocational Education and Workforce Development at the MDE, gave permission to use data from the MS-CPAS2 Allied Health program report. The participants were asked to participate in this study, and were informed of their right to refuse to be included in the study as well as the choice to withdraw at any time.

The Researcher-Created Survey was used to collect data for this study. These data were matched to teacher program area scores on the MS-CPAS2 test. They are discussed separately below.

Researcher-Created Survey

The researcher-created survey (Appendix B) followed the guidelines listed by Fraenkel and Wallen (2003). In the development of the survey, the researcher considered the usability and length of the survey. A concerted effort was made to maintain clarity and make the survey as self-explanatory as possible. The survey includes four sections.

The Professional Learning section asked participants to indicate their participation and implementation in face-to-face and online professional learning offered by the MDE, RCU, and MAC. Additionally, participants were asked to indicate if they successfully completed the National Board for Professional Teacher Certification, also known as National Board Certification for Teachers. The researcher assigned participant's responses into categorical data for analysis.

The Use of Curriculum Resources section asked participants to indicate their use of traditional and electronic resources. Traditional resources include teaching and

assessment strategies found in the curriculum framework. Electronic resources include the use of an electronic resource website called Blackboard Resources and Instructional materials Developed by Great Educators (B.R.I.D.G.E.). Participants indicated their use of resources by selecting from the following categories: (1) never, (2) almost never, (3) sometimes, (4) almost always, and (5) always. The researcher assigned participants' responses into categorical data for analysis.

The Use of Instructional Strategies section asked participants to indicate their use of resources by selecting from the following categories: (1) never, (2) almost never, (3) sometimes, (4) almost always, and (5) always. The researcher assigned participants' responses into categorical data for analysis.

The Teacher Experience section asked participants to indicate years of teaching experience, years of occupational experience related to the subject being taught, teacher preparation programs (alternative or traditional route), education level, and experience as a secondary or postsecondary student. The researcher assigned participants' responses into categorical data for analysis.

The researcher-created survey was pilot tested among several RCU staff members who are considered experts in the field of curriculum, instruction, and assessment (see Appendix C for expert reviewer biographies). Revisions were to be made to the original document based on comments from experts. Revisions included re-wording questions in order for participants to better understand. Next, the survey was piloted to 10 Allied Health instructors. Results from the piloted survey were examined and no revisions were made to the survey.

Participants were guaranteed confidentiality in the use of their data. Responses to the researcher-created survey were linked to the teachers' program area MS-CPAS2 scores.

Validity and Reliability

Validity includes the appropriateness, meaningfulness, and usefulness of the measurement instrument. Content validity refers to the content and format of the instrument (Fraenkel & Wallen, 2003). The researcher-created survey was reviewed by experts in the field of curriculum, instruction, and assessment for content and format (Appendix C). The experts were asked to judge whether the survey questions were appropriate for the study. Appropriate changes were made based on comments and suggestions from the experts. Next, the survey was piloted to 10 secondary Allied Health instructors. The results of the survey were analyzed by the researcher and no changes were made.

Reliability is the degree to which a test consistently measures whatever it is measuring. This was a model study, with the intent that changes will be made to the survey and procedures of the study based on findings. Reliability was addressed, and changes were recommended based on the findings of this study.

MS-CPAS2

The Mississippi Department of Education uses MS-CPAS2 to measure student attainment of career and technical skill proficiencies. Vocational educators in 94 vocational programs have participated in MS-CPAS2 development since March 2003.

Assessments were conducted in secondary Agriculture, Business, Family and Consumer Sciences, Health, Marketing, Technology, and Trade and Technology related fields (Research and Curriculum Unit, 2007). To ensure that each assessment measured technical skill attainment, the MAC implemented research-based assessment development strategies that included the following: (a) item bank development, (b) blueprint development, (c) sample items, (d) reliability studies, (e) validity studies, (f) report development, and (g) data mining and school improvement training for administrators and instructors (Research and Curriculum Unit, 2007).

Validity and Reliability

Item-level analysis for each of the MS-CPAS2 tests are performed using the Item Statistics Report (see Figure 2.2). This analysis provides data to assist in determining the content validity of each item. The key components from the item analysis include: (a) Item Difficulty, (b) Discrimination Index, and (c) Distractor Analysis (Research and Curriculum Unit, 2007).

Item difficulty is measured by the percentage or proportion of students who correctly answered the item. When MS-CPAS2 tests are evaluated for content validity, each item that falls above 90% or below 20% is examined more closely to determine if the item is at the appropriate difficulty level (Research and Curriculum Unit, 2007).

The discrimination index is the computed difference between the percentage of high achievers (top 27%) and the percentage of low achievers (bottom 27%) who

correctly answered each item. Test items that fall below 25% are checked to determine if the item needs to be modified (Research and Curriculum Unit, 2007).

The distractor analysis provides information regarding the distractors (wrong answers) in each multiple choice question. The purpose of this evaluation is to determine if the distractors are in fact "distracting" or if they are obviously wrong answers. A good distractor attracts more students from the lower group than from the higher group. Items with a "0" value indicate that students from higher scoring groups selected the wrong answer (Research and Curriculum Unit, 2007).

The MAC uses the Cronbach's alpha to determine validity and Pearson's correlation to determine reliability. Items that meet all expectations during the item analysis are used in the equating process (Research and Curriculum Unit, 2007).

The purpose of the equating process is to develop three equated tests for each career and technical program that is tested. Each equated test consists of 20 anchor items and 55 items that are only on that particular equated test. Each MS-CPAS2 test consists of 75 test questions. The number of lower level (C1) and higher level (C2) questions required on each test is determined by the depth and range of knowledge required to show mastery learning. As a rule, at least 25% of the MS-CPAS2 test items require higher level thinking skills, which consists of students' being required to use strategic and extended thinking, while 75% of the MS-CPAS2 test items require lower level thinking skills, which require students to use recall or understand the basic application of the skill or concept that is being tested (Research and Curriculum Unit, 2007).

The equating process involves calculating a confidence interval on item *p* values to provide a plausible range from which to select items based on their *p* value. Items are first selected within a 95% confidence interval from the mean *p* value. Items that serve as anchors come from this range. After each anchor item has been selected, the remaining test items are selected from this range as well. If there are not enough items in this range to complete each test, additional items are selected in increments of 5 points from the confidence interval range (Research and Curriculum Unit, 2007).

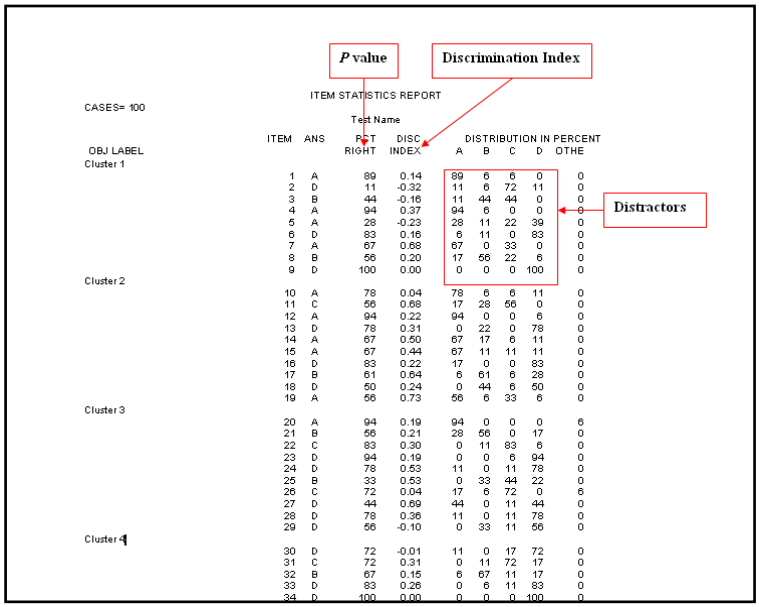

Figure 2.2

Example of Item Statistics Report

Data Analysis

To answer the research questions found in this study, the researcher used descriptive and inferential statistics (Fraenkel & Wallen, 2003). Data analysis was conducted using SPSS® Version 14.0 software. An Analysis of Variance (ANOVA) was used when the cell size was acceptable. An ANOVA is a procedure that is used to evaluate mean differences between two or more treatments or populations (Gravetter & Wallnau, 2002). Assumptions for ANOVA include normality, homogeneity of variance, and independence of observations. The researcher visually inspected the data using a histogram and also used a Shapiro-Wilk test. Additionally, the researcher used the Levene statistic to check the homogeneity of variance assumption. A .05 significance level was used when performing all statistical tests. In an effort to have a larger number of participant data to use in this study, a random sample was not conducted. The independence assumption was not met; therefore, results are not generalizable.

CHAPTER III

RESULTS AND ANALYSIS

Introduction

The purpose of this study was to determine if characteristics of teachers impact student learning in a secondary career and technical education Allied Health program area. Presented in this chapter are a description of the study and an analysis of the data. The description of the study presents the procedures followed in collecting and analyzing data. The description of the data is presented in two sections: (a) a description and analysis of the dependent variable, which is the program area MS-CPAS2 scores (mean of student scores) for each Allied Health program area teacher and (b) a description and analysis of the independent variables, which are characteristics of teachers. The description and analysis of the independent variables are presented in four sections: (a) participation in professional learning, (b) the use of curriculum and instruction resources, (c) the use of researched-based instructional strategies, and (d) other teacher characteristics. The four related research questions are addressed and the chapter concludes with a discussion of the research findings.

Description of the Study

The survey was developed from findings of previous research presented in the literature review and then shared with experts in the field of curriculum, instruction, and

assessment and modifications were made. Next, 10 Allied Health teachers were randomly selected to participate in a pilot study. These participants were e-mailed the consent letter and then asked to reply with a "yes" or "no" in the body of the e-mail message to indicate consent. The survey was then e-mailed to participants. The participants e-mailed or faxed the completed survey back to the researcher. Results were analyzed, and no changes were made to the survey.

The Mississippi Assessment Center (MAC) provided the researcher a database of instructor codes for Allied Health teachers. The researcher used the database to include the instructor code on each survey. The researcher inserted the coded surveys in envelopes that had corresponding instructor names and instructor codes.

After the end of the Allied Health breakout session at the MAC Data Retreats workshop on June 11 – 14, 2007 at Mississippi State University, Allied Health instructors who attended the data retreat session were given the IRB consent form and the envelopes that had the researcher-created survey. Teachers signed the consent forms, opened the envelopes, and then completed the survey. Of the Allied Health teachers who attended the MAC Data Retreat workshop, 100% returned the survey. Upon completion, each participant handed the consent form and the survey to the researcher and then disregarded the envelope. A total of 11 participants submitted completed surveys at the data retreat sessions.

Allied Health instructors who did not attend the data retreat were sent the IRB consent form, the survey, and a pre-paid postage envelope to return the completed consent form and survey. A letter asking participants to complete the survey was also

included in the package. This package was sent to the teacher's school address because it was during the summer, and many teachers were off contract. The same packet was sent electronically with an e-mail asking participants to complete the IRB consent form and survey. Teachers chose to fax, mail, or e-mail the completed consent form and survey to the researcher.

There are a total of 99 Allied Health instructors. Of the 99 participants, 10 were classified as new teachers and could not be used in this study because they were not teaching when the MS-CPAS2 was administered. Ten Allied Health teachers were randomly selected to pilot the survey. Those ten also signed a consent form agreeing to participate in the study. No changes were made as a result of the pilot; therefore, those 10 survey responses were used in the study. A total of 11 participants completed the consent form and survey at the data retreat session. Twenty-eight participants chose to e-mail, mail, or fax the consent form and survey. All teachers were mailed the consent and survey, and those who provided the MDE with e-mail addresses were e-mailed the consent and survey. A total of 49 consent forms and surveys were collected, totaling a return rate of 55% (49 of 89).

The researcher obtained the MS-CPAS2 Allied Health program scores from the MAC and input the data into SPSS® Version 14.0 statistical analysis program. The researcher used the teacher code to link MS-CPAS2 program scores to teacher responses from the researcher-created survey. Information from the researcher-created survey was entered into SPSS® Version 14.0 software and analyzed.

The Independent Variables

The independent variables of this study were collected by use of a survey (Appendix B). The variables were: (a) participation in professional learning, (b) the use of curriculum and assessment resources, (c) the use of researched-based instructional strategies, and (d) teacher characteristics. A summary of the survey can be found in Chapter 2. A description and analysis of the independent variable can be found in the following section.

Dependent Variable

The Perkins IV (2006) federal legislation requires teachers to be held accountable for student attainment of career and technical proficiencies that are aligned with industry-recognized standards. Mississippi has chosen to meet this federal requirement by administering a criterion-referenced, summative assessment called MS-CPAS2. This assessment is given to students when they complete a four Carnegie unit program (a total of 560 student/teacher contact hours). For this study, the dependent variable is defined as program area scores. Program area scores are the mean of student scores in each Allied Health teacher's class.

The MS-CPAS2 Test

The MS-CPAS2 for the Allied Health program includes 70 items. All items are classified as active items, meaning they have been piloted with secondary Allied Health students and are considered to be valid and reliable. This also means all items are scored and used in determining individual student scores. The level of difficulty for each

question is determined by the depth and range of knowledge required to show mastery learning. Lower level questions are identified as C1 and include basic recall of information. Higher level questions are identified C2 and include not only recall of basic information but also the application of that information at a deeper level of understanding and application. On each MS-CPAS2 test, 75% of the test items are basic lower level (C1) and 25% of the test items are a higher level (C2) (Research and Curriculum Unit, 2007). Information regarding the validity and reliability of the MS-CPAS2 can be found in Chapter 2.

Description of the Dependent Variable

In a check of normality of dependent variable scores used in this study using the Shapiro-Wilk statistic, there was no violation of normality, $p > .05$. There were no outliers in the dependent variable scores. A summary of the dependent variable used in this study is listed in Table 3.1.

Table 3.1

Description of Dependent Variable

			Shapiro-Wilk Test		
N=49	MS-CPAS 2 Mean by Responses	Standard Deviation	Statistic	Df	Sig.
Program Area Raw Scores	50.75	6.05	.974	99	.05

In an effort to determine if the participants who returned the survey represented the population of all Mississippi Allied Health teachers, participant location was

geographically pinpointed on a state map. The points were visually inspected to ensure that all regions were equally represented.

An ANOVA was used to determine if MS-CPAS2 scores of participants who responded to the survey were representative of the scores of all Mississippi Allied Health teachers. In a check of homogeneity of variance using the Levene Statistic, there was no evidence that the homogeneity assumption was violated, $p > .05$. From the ANOVA results, there was not a significant difference in MS-CPAS2 scores of those who responded to the researcher-created survey and those who did not, $F(1, 97) = 3.53$, $MSE = 126.3$, $p < .05$. A summary of these ANOVA results are found in Table 3.2.

Table 3.2

MS-CPAS2 Participant Response ANOVA Table

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	126.30	1	126.30	3.63	.063
Within Groups	3467.75	97	35.75		
Total	3594.05	98			

Additionally, an ANOVA was used to determine if participants who responded to the survey represented the population of Mississippi Allied Health teachers by the number of students who completed the MS-CPAS2 exam. In a check of homogeneity of variance using the Levene Statistic, there was no evidence that the homogeneity assumption was violated, $p > .05$. A significant difference was not found in the number of students who completed the MS-CPAS2 exam of those who responded to the researcher-

created survey and those who did not, F (1, 97) = 1.40, MSE = 65.87, p <.05. A summary of these ANOVA results can be found in Table 3.3.

Table 3.3

Number of Student Participant Response ANOVA Table

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	65.86	1	65.86	1.40	.239
Within Groups	4560.82	97	47.01		
Total	4626.68	98			

The participants who returned the survey are representative of the population of Allied Health teachers in geographic region, program area MS-CPAS2 scores, and number of students per program. The analysis of data from the participants who responded to the survey, therefore, can be generalized to the population of Mississippi Allied Health teachers.

Results of Data Analysis Related to the Research Question

This section presents the results of the data analysis and provides findings related to the research question and related questions. The research question is followed by the related questions. The research question is as follows: Do teacher characteristics impact Mississippi vocational and technical program MS-CPAS2 scores? To answer this question, the researcher conducted both descriptive research analysis and inferential statistical analysis. To help answer the question, four specific related questions were addressed.

Related Question #1

Question: Does teacher participation in professional learning opportunities impact Mississippi Allied Health program MS-CPAS2 scores?

Participating in professional learning opportunities does impact Mississippi Allied Health program MS-CPAS2 scores. In order to answer this question, data from the professional learning section of the survey were used. A summary of participants' responses to the professional learning section of the survey can be found in Table 3.4. Following Table 3.4 is a discussion of each section of the survey. Table 3.4 is followed by a summary which addresses each related research question.

Face-To-Face Professional Learning Opportunities

Descriptive statistics indicate that the more face-to-face professional learning sessions a teacher attends, the lower the MS-CPAS2 scores of their students. Participants who attend 0 (n=5) and 1 – 2 sessions (n=26) have students who score higher (M=53.11 and M=53.39, respectively, on MS-CPAS2) than students who have teachers who attend 3 – 4 (n=16) and 5 or more (n=2) (M=49.86 and M=40.08, respectively, on MS-CPAS2). From this descriptive analysis, there two important concerns. First, there were only five participants who selected that they attended zero of the face-to-face sessions. Because of the small cell size, it was important to conduct further analysis to determine if the MS-CPAS2 mean by responses scores were influenced by extreme scores. Upon Table 3.4

Table 3.4

Professional Learning Summary Response

N=49	Possible Responses	Frequency of Responses	MS-CPAS 2 Mean by Responses
Participation in Face-To-Face	0 (sessions)	5	53.11
Professional Learning	1 – 2 (sessions)	26	53.39
Opportunities	3 – 4 (sessions)	16	49.86
	5 or more (sessions)	2	40.08
Participation in Online	0 (sessions)	22	52.10
Professional Learning	1 – 2 (sessions)	14	52.36
Opportunities	3 – 4 (sessions)	8	52.63
	5 or more (sessions)	5	46.32
Attendance at 2005 Data Retreat	No	38	52.38
Workshop	Yes	11	49.20
Modification of Instruction based	No	12	49.36
on 2005 MS-CPAS Score	Yes	37	52.42
Use of MS-CPAS2 Practice Test to	No	6	48.70
prepare students for MS-CPAS2	Yes	43	52.08
Completion of National Board	No	39	52.28
Training and Certification	Yes	10	49.28

further analysis, there were no extreme scores; thus, the score is an accurate description of those who attended zero sessions. Second, there were only two participants who indicated that they attended five or more sessions and one was an outlier who had an extremely lower dependent variable score (case # 33, M=34.25). Because of this low score, this case was not used in further data analysis and discussion of face-to-face professional learning.

In addition to descriptive statistics, an ANOVA was used to determine if these variables have an impact on Allied Health program MS-CPAS2 scores. Because of small cell size, the data were recoded into three groups: (a) no participation in face-to-face

professional learning, (b) attendance of 1 – 2 face-to-face professional learning sessions, and (c) attendance of 3 or more face-to-face professional learning sessions. When data were combined into these groups, there were no extreme scores that influenced the means. A summary of the Face-to-face Professional Learning ANOVA table can be found in Table 3.5.

Table 3.5

Face-to-face Professional Learning ANOVA Table

Variable		Sum of Squares	Df	Mean Square	F	Sig.
Face-to-face Professional Learning	Between Groups	238.639	2	119.32	3.760	.031*
	Within Groups	1459.907	46	31.737		
	Total	1698.547	48			

** Indicates a statistically significant difference.*

In a check of posttest scores for homogeneity of variance, via the Levene statistic, there was no violation of the assumption, $p > .05$. A statistically significant difference was found between groups, F (2, 46) = 3.760, MSE = 119.320. A follow-up test using the Bonferoni post hoc procedure at the level of .05 indicated that there is a statistically significant difference between the group of teachers who attended 1 – 2 face-to-face professional learning opportunities (M=53.39, SD=5.65, n=26) and those who attended 3 or more face-to-face professional learning sessions (M=48.77, SD=55.87, n=18). No other differences were statistically significant.

From this analysis revealing a statistically significant difference, it is apparent that those who attended 1 – 2 professional learning sessions had a student mean score 4.62

points higher on MS-CPAS2 tests than teachers who attended 3 or more face-to-face professional learning sessions. The national trend in professional learning is to move away from the quantity of professional learning sessions and toward fewer sessions that focus on one or two major professional learning concepts. M. Bowen (personal communication, December 10, 2007), an expert in professional learning, indicated that when teachers participate in multiple sessions over a short amount of time, they may be working toward earning a specific amount of continuing education units (CEUs) for recertification and may not be as focused on sharpening their teaching skills to improve student learning. This is known as "seat-time." More investigation is needed, but the results of this analysis may support the research from the National Staff Development Council regarding the negative effect that "seat-time" has had on teachers' professional learning experiences and student learning (Easton, 2004).

Participation in Online Professional Learning Opportunities

Descriptive statistics also show that more people are participating in face-to-face professional learning (n=44) than online professional learning (n =27). It is important to note that there was an extreme low score (case #33, M=34.25) who indicated that the participant attended five or more online sessions. This extreme low score has a large effect on the MS-CPAS2 mean by response variable in Table 3.4.

An ANOVA was used to determine if these variables have an impact on Allied Health program MS-CPAS2 scores. Because of small cell size, variables were combined into two levels: (a) participants who have completed online professional learning

(*M*=51.31, *SD*=6.89, n=27) (a combination of 1 – 2 sessions, 3 – 4 sessions, and 5 or more sessions) and (b) participants who have not completed online professional learning (*M*=52.09, SD=4.65, n=22) (participants who selected 0 sessions). A summary of the Online Professional Learning ANOVA table can be found in Table 3.6.

Table 3.6

Online Professional Learning ANOVA Table

Variable		Sum of Squares	Df	Mean Square	F	Sig.
Online Professional Learning	Between Groups	7.32	1	7.328	47	.204
	Within Groups	1691.21	47	35.98		
	Total	1698.54	48			

A statistical significant difference was not found between those who have completed online professional learning and those who have not. When analyzing the types of online professional learning opportunities from the RCU that the participants had available, it was apparent that each session was generic in nature, and not focused on improving program area test scores. Standards of The National Staff Development Council (2007) indicate that professional learning must be data driven and must be focused on improving student learning.

Attendance at Data Retreat Sessions

Although a majority of the participants are not attending the data retreat sessions, those who attend (*n*=11) have students with lower MS-CPAS2 scores (*M*=49.20) than teachers who do not attend (*n*=38) (*M*=52.38). There were 2 extreme program area

scores (means of all student scores in those teacher's programs) (case #5, *M*= 35.92; case #10, *M*=39.06) from teachers who indicated attendance at the data retreat session. Additionally, there was one extreme lower program area score (mean of all student scores in that teacher's program) (case #33, *M*=34.25) who indicated that they attended the data retreat session. All three of the extreme program area scores were removed and data were reanalyzed. A summary of the original data related to this variable and the data with the extreme scores removed can be found in Table 3.7. Results indicate that the extreme program area scores had very little effect on the mean difference between those who attended the data retreat session and those who did not attend the data retreat session.

Table 3.7

Attendance of 2005 Data Retreat Workshop Outlier Description and Comparison

		Description of All Responses		Description of Responses with Outliers Removed	
	Participant Response	Frequency of Responses	MS-CPAS2 Mean by Response	Frequency of Responses	MS-CPAS2 Mean by Response
Attendance of 2005 Data Retreat Workshop	No	38	52.38	36	53.21
	Yes	11	49.20	10	50.69
Mean Difference			3.13		2.52

An ANOVA was conducted to determine if these variables had an impact on Allied Health program MS-CPAS2 scores. A summary of the Attendance of 2005 Data Retreat ANOVA table can be found in Table 3.8. The ANOVA was conducted with the data set that excluded the three extreme scores.

Table 3.8

2005 Data Retreat ANOVA Table

Variable		Sum of Squares	Df	Mean Square	F	Sig.
Attendance of 2005 Data Retreat Session	Between Groups	49.64	1	49.64	2.44	.125
	Within Groups	893.01	44	20.29		
	Total	942.65	45			

There were 2 levels related to this variable: (a) participants who attended the 2005 data retreat (M=50.69, SD=3.66, n=10) and (b) participants who did not attend the 2005 data retreat (M=53.21, SD=4.69, n=36). A statistically significant difference was not found, although the mean score of those who attended was lower than those who did not attend. This is in conflict to the research that states that when professional learning is focused on data, student learning increases (National Staff Development Council, 2007). Small cell size may be a reason that these findings conflict with prior research. Additionally, this data retreat session was a one-day, 3-hour session. This session was not completely based on National Staff Development Council (NSDC) standards (NSDC, 2007) and no pre-work or follow-up contact was made with participants.

Modification of Instruction Based on MS-CPAS2

Although few Allied Health teachers did not attend the data retreat sessions, data revealed that they were modifying their instruction based on previous MS-CPAS2 test scores. When examining the initial results from the descriptive statistics, participants are using the MS-CPAS2 practice test. Students who have teachers who modify their instruction based on the previous MS-CPAS2 program area scores (n=37) have a higher

mean (M=52.42) than students who have teachers who do not modify their instruction (n=12, M=49.36). The cell size for those who indicated that they were not modifying their instruction is small, but there are no extreme scores in this group of data. These data indicate that 75% of the Allied Health teachers who responded to the survey are making instructional changes based on data.

An ANOVA was used to determine if these variables have an impact on Allied Health program MS-CPAS2 scores. A summary of the ANOVA table can be found in Table 3.9.

Table 3.9

Professional Learning ANOVA Table

Variables		Sum of Squares	Df	Mean Square	F	Sig.
Modification of Instruction	Between Groups	84.46	1	84.46	2.460	.124
	Within Groups	1614.07	47	34.34		
	Total	1698.54	48			

Two levels related to this variable: (a) participants who modified their instruction (M=52.41, SD=5.67, n=37) and (b) participants who did not modify their instruction (M=49.36, SD=6.42, n=12). There was no statistically significant difference, but it is interesting to note that students who have teachers who modify their instruction had higher MS-CPAS2 program area scores (3.05 points) than those students who have teachers who did not modify their instruction. The National Staff Development Council Standards for Professional Learning (2007) indicate that when teachers use data to make

decisions in their classroom, student learning is higher. In this study, student learning was higher but there was no statistically significant difference.

Use of MS-CPAS2 Practice Test

Descriptive statistics indicate that participants who used the practice test (n=43) have a higher mean score (M=52.08) than those who do not use the practice test (n=6) (M=48.70). These data indicate that 87% of teachers who responded to the survey are using the practice test to prepare for MS-CPAS2 exams. Upon further examination of the data related to this variable, there was one extreme score (case #5, M= 35.92) that indicated that they did not use the MS-CPAS2 practice test. The total cell size for participants who indicated that teacher did not use the practice test was 6. Case #5 was eliminated and data were reanalyzed. A summary of the original data related to this variable and the data with the outlier removed can be found in Table 3.10. Results show that the difference between mean scores of those students who have teachers who used the MS-CPAS2 practice test (M=52.08, n=43) and those students who have teachers who did not use the MS-CPAS2 practice test (M=51.26, n=5) was only 0.82.

An ANOVA was used to determine if these variables have an impact on Allied Health program MS-CPAS2 scores. The summary of the ANOVA table can be found in Table 3.11.

There were 2 levels related to professional learning: (a) participants who used the MS-CPAS2 practice test (M=52.08, SD=5.77, n=43) and (b) participants who did not use the MS-CPAS2 practice test (M=52.08, SD=3.24, n=5). A statistically significant

difference was not found, but it is interesting to note that 88% of the participants used the MS-CPAS2 practice test (Table 3.4).

Table 3.10

Use of MS-CPAS2 Practice Test Outlier Description and Comparison

		Description of All Responses		Description of Responses with Outliers Removed	
	Participant Response	Frequency of Responses	MS-CPAS2 Mean by Response	Frequency of Responses	MS-CPAS2 Mean by Response
Use of MS-CPAS2 Practice Test to prepare students for MS-CPAS2	No	6	48.70	5	51.26
	Yes	43	52.08	43	52.08
Mean Difference			3.38		0.82

Table 3.11

Professional Learning ANOVA Table

Variables		Sum of Squares	Df	Mean Square	F	Sig.
Use of MS-CPAS2 Practice Test	Between Groups	3.02	1	3.02	.096	.758
	Within Groups	1442.35	46	31.35		
	Total	1445.38	47			

National Board Training and Certification

Ten participants indicated that they have completed National Board Certification. In the initial analysis of descriptive statistics, participants who have completed National Board Certification (n=10) have student scores that are lower (M=49.28) than those who

have not successfully completed National Board Certification (*n*=39) (*M*=52.28). When further analyzing these data, there were two extreme scores (case #5, *M*= 35.92; case #10, *M*=39.06). These two cases were disregarded, and data were reanalyzed. A summary of the original data related to this variable and the data with the extreme scores removed can be found in Table 3.12. Results show that there is a very small difference (0.06) difference between means of those students who have teachers who have completed National Board Training and Certification (*M*=52.23, *n*=10) and those students who have teachers who have not completed National Board Training and Certification (*M*=52.29, n =39).

Table 3.12

National Board Certification and Training Outlier Description and Comparison

		Description of All Responses		Description of Responses with Outliers Removed	
	Participant Response	Frequency of Responses	MS-CPAS2 Mean by Response	Frequency of Responses	MS-CPAS2 Mean by Response
Completion of National Board Training and Certification	No	39	52.28	39	52.29
	Yes	10	49.28	8	52.23
Mean Difference			3.00		0.06

An ANOVA was used to determine if these variables have an impact on Allied Health program MS-CPAS2 scores. A summary of the ANOVA table can be found in Table 3.13.

Table 3.13

National Board Certification and Training ANOVA Table

Variable		Sum of Squares	Df	Mean Square	F	Sig.
Completion of National Board Certification	Between Groups	.01	1	.01	.000	.984
	Within Groups	1274.47	45	28.32		
	Total	1274.48	46			

Two levels related to this variable (Table 3.12): (a) participants who were national board certified (M=52.23, SD=3.94, n=8) and (b) participants who were not national board certified (M=52.29, SD=5.53, n=39). No statistically significant difference was found. This is in direct conflict to the literature related to this topic. Vandevoort et al. (2004) reported that teachers who completed the National Board Certification process were superior in promoting academic achievement to those who did not complete the process. While Vandevoort et al. focused on academic teachers, this study focused on career and technical education teachers.

Related Question #1 Summary

The only statistically significant difference found was the face-to-face professional learning variable. Data analysis shows that students who had teachers who attend 1 – 2 professional learning sessions had a higher student mean score on MS-CPAS2 tests than students who had teachers who attended 3 or more face-to-face professional learning sessions. Additionally, descriptive statistics showed that more Allied Health teachers are participating in face-to-face professional learning (n=44) than online professional learning (n=27). Although a majority of the participants are not

attending the data retreat sessions, those who attend (M=49.20, n=11) have lower MS-CPAS2 scores than those who do not attend (M=52.38, n=38). This may indicate that teachers and administrators are realizing the importance of using data to make decisions, and those who are not scoring well on MS-CPAS2 are attending the data retreat session in hopes of gaining valuable information that they can use to improve student learning in their classroom. This study found that 75% of the Allied Health teachers who responded to the survey are making instructional changes based on data and 88% of the participants used the MS-CPAS2 practice test.

Related Question #2

Question: Does teacher use of curriculum and instruction resources impact Mississippi Allied Health program MS-CPAS 2 scores?

The use of curriculum and instruction materials does not impact the Mississippi Allied Health program MS-CPAS2 scores. In order to answer this question, data from the Use of Curriculum and Assessment Resources section of the survey were used. Descriptive and inferential statistics were used to determine if the use of specific curriculum and instruction variables had an impact on MS-CPAS2 scores and if there were any differences in the use of traditional and electronic resources.

This section of the survey consisted of information related to the teacher's use of curriculum and instruction resources provided by the RCU and the MDE. The first three questions in this section were dedicated to more traditional resources, such as the curriculum framework, teaching strategies, and assessment strategies. Every participant

who responded to the survey indicated that use of the traditional resources. The last two questions from this section were used to determine participant use of the electronic resources, such as the B.R.I.D.G.E. resource web site and communication tools, that are provided for them. A summary of participants' responses to the professional learning section of the survey can be found in Table 3.14. An in-depth discussion and analysis of each variable can be found in the following subsections.

Table 3.14

Curriculum and Assessment Resources Summary Response

***N*=49**	Possible Responses	Frequency of Responses	MS-CPAS 2 Mean by Responses
Use of Curriculum Framework when Planning Instruction	0 (Never)	0	
	1(Almost Never)	0	
	2 (Sometimes)	3	54.75
	3 (Almost Always)	8	50.32
	4 (Always)	38	51.71
Use of Teaching Strategies	0 (Never)	0	
	1(Almost Never)	2	54.05
	2 (Sometimes)	12	53.13
	3 (Almost Always)	19	49.89
	4 (Always)	16	52.38
Use of Assessment Strategies	0 (Never)	0	
	1(Almost Never)	1	51.64
	2 (Sometimes)	15	52.99
	3 (Almost Always)	18	50.46
	4 (Always)	15	51.79
Use of Electronic Resource Site (B.R.I.D.G.E.)	0 (Never)	5	54.39
	1(Almost Never)	14	51.79
	2 (Sometimes)	19	52.80
	3 (Almost Always)	9	47.68
	4 (Always)	2	51.22
Communication via the Electronic Resource Site (B.R.I.D.G.E.)	0 (Never)	10	53.34
	1(Almost Never)	22	52.86
	2 (Sometimes)	15	50.03
	3 (Almost Always)	2	42.49
	4 (Always)	0	

The Use of Curriculum Framework When Planning Instruction

Descriptive statistics indicate that the students who have teachers who responded that they sometimes use the curriculum framework (n=3) have a higher score (M=54.75) than those students who responded that they almost always (n=8) and always (n=38) (M= 50.75 and M=51.71 on MS-CPAS2, respectfully) use the curriculum framework when planning instruction. There were no extreme scores.

Because of the small cell size, it was inappropriate to use an ANOVA when analyzing this portion of the data. Therefore, descriptive data related to this variable were analyzed. Table 3.15 describes the frequency and percent of participant responses to the survey.

Table 3.15

Use of Curriculum Framework Participant Percentage

Selected Response by Participant	Frequency	%	Cumulative %
Never	0	0	0
Almost Never	0	0	0
Sometimes	3	6.1	6.1
Almost Always	8	16.3	22.4
Always	38	77.6	100.0

Descriptive statistics indicate that 93.9% of the participants who were surveyed indicate that they almost always or always use the statewide curriculum framework when planning instruction. The MS-CPAS2 assessment was developed based on the competencies and objectives from the statewide curriculum framework. These data indicate that Allied Health teachers have realized the relationship between the curriculum

framework and the MS-CPAS2 exam. This is an extremely important finding, because these findings indicate that all teachers are using the curriculum framework; therefore, the curriculum framework must be researched-based and of the highest quality.

Additionally, the mean by response for those who selected sometimes was higher than the mean by response of those who selected almost always or always. Although this was only looking at the use of the curriculum framework overall, it may mean that the quality of components of the curriculum, such as the teaching and assessment strategies, needs to improve.

The Use of Teaching Strategies

Descriptive statistics indicate that 100% of the teachers surveyed use the teaching strategies when planning instruction. There were no extreme scores in any of the categories. Table 3.16 describes the frequency and percent of participant responses to this section of the survey.

Table 3.16

Use of Teaching Strategy Participant Percentage

Selected Response by Participant	Frequency	%	Cumulative %
Never	0	0	0
Almost Never	2	4.0	4.0
Sometimes	12	24.8	28.4
Almost Always	19	38.7	67.0
Always	16	32.6	100.0

Because of small cell size, participant responses were combined into 3 levels: (a) never, almost never, and sometimes were combined and reclassified as low use of

resources (*M*=53.26, *SD*=4.03, *n*=14); (b) almost always was reclassified as medium use of resources (*M*=49.89, *SD*=6.96, *n*=19); and (c) and always was reclassified as high use of resources (*M*=52.37, *SD*=5.82, *n*=16). There was no statistical significant difference among the three variables. A summary of the teaching strategy ANOVA table can be found in Table 3.17.

Table 3.17

Use of Teaching Strategy ANOVA Table

Variable		Sum of Squares	Df	Mean Square	F	Sig.
Use of Teaching Strategies	Between Groups	103.625	2	51.813	1.494	.235
	Within Groups	1594.921	46	34.672		
	Total	1698.547	48			

Although there was no statistically significant difference, it is important to note that 96% (*n*=47) of the teachers use the teaching strategies "sometimes" or more. This indicates that teachers are using these strategies; therefore, it is important that curriculum developers continue to include researched-based instructional strategies in the curriculum framework.

The Use of Assessment Strategies

Descriptive statistics indicate that 100% of the teachers surveyed use the assessment strategies when planning instruction. No extreme scores in any of the categories were found; therefore, the mean is an accurate description of participant

responses. Table 3.18 describes the frequency and percent of participant responses to this section of the survey.

Table 3.18

Use of Teaching Strategy Participant Percentage

Selected Response by Participant	Frequency	Percent	Cumulative %
Never	0	0	0
Almost Never	1	2	2
Sometimes	15	30.6	32.6
Almost Always	18	36.7	69.3
Always	15	30.7	100.0

Because of small cell size, variables were combined into 3 levels: (a) low use of resource (M=52.90, SD=4.63, n=16) (a combination of those who selected never, almost never, and sometimes); (b) medium use of resources (M=50.46, SD=6.95, n=18) (those who selected almost always); and (c) high use of resources (M=51.78, SD=5.99, n=15) (those who selected always). An ANOVA was used to determine if these variables had an impact on Allied Health program MS-CPAS2 scores. A summary of the assessment strategy ANOVA table can be found in Table 3.19.

Table 3.19

Use of Assessment Strategy Resources ANOVA Table

Variable		Sum of Squares	Df	Mean Square	F	Sig.
Use of Assessment Strategies	Between Groups	50.82	2	25.41	.709	.497
	Within Groups	1647.72	46	35.82		
	Total	1698.547	48			

A statistically significant difference among the three variables was not found. It is important to note that 98% (n=48) of the teachers use the assessment strategies "sometimes" or more. This indicates that teachers are using these strategies; therefore, it is important that curriculum developers continue to include researched-based instructional and assessment strategies that are aligned to the MS-CPAS2 in the curriculum framework.

The Use of B.R.I.D.G.E. Resources

Extreme scores in any of the categories were not found. Table 3.20 describes the frequency and percent of participant responses to this section of the survey.

Table 3.20

Use of B.R.I.D.G.E. Participant Percentage

Selected Response by Participant	Frequency	Percent	Cumulative %
Never	5	10.2	10.2
Almost Never	14	28.6	38.8
Sometimes	19	38.8	77.6
Almost Always	9	18.4	96.0
Always	2	4.1	100.0

Because of small cell size, variables were combined into 3 levels: (a) low use of resources (M=52.47, SD=4.72, n=19) (a combination of those who never and almost never); (b) medium use of resources (M=52.79, SD=5.849, n=19) (those who selected sometimes); and (c) high use of resources (M=48.32, SD=7.219, n=11) (a combination of those who selected almost always and always). There was no statistically significant difference. A summary of the use of B.R.I.D.G.E. resources ANOVA table can be found in Table 3.21.

Table 3.21

Use of B.R.I.D.G.E. Resources ANOVA Table

Variable		Sum of Squares	Df	Mean Square	F	Sig.
Use of B.R.I.D.G.E. Resources	Between Groups	159.569	2	79.784	2.385	.103
	Within Groups	1538.978	46	33.456		
	Total	1698.547	48			

Although there was no statistical significant difference between the three variables, it is important to note that 61% (n=30) of the teachers use this resource site "sometimes" or more. Marilyn Bowen (personal communication, December 14, 2007), an

RCU Blackboard® system administrator, indicated that the B.R.I.D.G.E. resource site records descriptive statistics related to the participant's use of the site. She assembled and analyzed the B.R.I.D.G.E. resource site records for overall participant amount of usage of the site from August 2007 – December 2007. A summary of the overall B.R.I.D.G.E. resource site course statistics can be found in Table 3.22.

These data indicated that zero of the Allied Health teachers who are enrolled in the site have used the "Content Area" section of the site. The Content Area houses specific information related to curriculum, assessment, and professional learning for the Allied Health program. Specifically, this content is rich in multimedia presentations that can be used to enhance lecture in the Allied Health classroom. Additionally, 84.82% of users only use the Announcements section of the site, which houses pieces of communication from state leaders in the Allied Health field.

Table 3:22

Overall B.R.I.D.G.E Resource Site Course Statistics

Area ID	Hits	Percent
Blackboard Scholar	0	0.0
Announcements	732	84.82
Glossary	1	0.12
Collaboration	2	0.23
Communications Area	30	3.48
Content Area	0	0.0
E-mail	73	8.46
Roster	6	0.0
Discussion Board	2	0.23
The Electric Blackboard	1	0.12
Groups	2	0.23
Messages	4	0.46
My Grades	3	0.35
Total	863	100

This data analysis indicates that even though participants indicate that they use the B.R.I.D.G.E. resource site on the survey, they are only using the announcement and communication (which includes communications, e-mail, discussion boards, etc.) portions of the site. The sections that house important resources that teachers can use when planning instruction are not being accessed by any user, which was one of the main purposes of spending resources, such as time and money, to build this site. This may be the reason why the use of this resource has no influence on student learning scores.

The Use of B.R.I.D.G.E. Communication Tools

Extreme scores in any of the categories were not found; therefore, the mean is an accurate description of participant responses. Because of small cell size, variables were combined into 3 levels: (a) never use (M=53.34, SD=4.857, n=10) (those who select Never); (b) seldom use (M=52.85, SD=4.32, n=22) (those who select Almost Never); and (c) use often (M=49.14, SD=7.60, n=17) (a combination of those who selected Sometimes and Almost Always). There was no statistical significant difference. A summary of the use of B.R.I.D.G.E. communication tools ANOVA table can be found in Table 3.23.

Table 3.23

Use of B.R.I.D.G.E. Communication Tools ANOVA Table

Variable		Sum of Squares	Df	Mean Square	F	Sig.
Use of B.R.I.D.G.E. Communication Tools	Between Groups	167.632	2	83.816	2.518	.092
	Within Groups	1530.914	46	33.281		
	Total	1698.547	48			

Although there was no statistically significant difference, it is important to note that 65.3% (n=32) of the teachers use this resource site "almost never" or less. The analysis of the descriptive statistics from the B.R.I.D.G.E. resource site (Table 3.16) shows that the participant usage is classified as the use of a communication tool. When users are using the site, they are using the communication tools.

The results from this survey and the results from the B.R.I.D.G.E. resource site analysis are in conflict. Participants are indicating that they are not using the site, but site records indicate that they are using the site. Analysis shows that they are mostly using the announcements section. This use consists of a participant's logging into the system and reading the front page of the site. Because participants are only logging in and viewing the announcements, participants may have mistaken that for non-use.

Related Question #2 Summary

No statistically significant differences were found when analyzing the curriculum and instruction variables. Descriptive data analysis shows that Allied Health teachers who responded to the survey are using the curriculum framework, the teaching strategies that are in the curriculum framework, and the assessment strategies that are in the curriculum framework when planning instruction. Participants are not using the electronic resources that are posted on the B.R.I.D.G.E. web site, but they are utilizing the communication tools, such as e-mail, discussion boards, and announcements on the web site. Information learned from this analysis is crucial information for the RCU and the MDE. First, because all teachers are using the curriculum framework, it is important that the information in the

curriculum framework be standards-based, research-based, of the highest quality, and aligned to the MS-CPAS2 assessment. Teaching and assessment strategies should be based on research that is proven to increase student learning. Additionally, the RCU and the MDE spend resources, such as time and money, building the B.R.I.D.G.E. web site. The primary purpose of this web site is to post high-quality lesson plans and activities that teachers can use in their classrooms (Research and Curriculum Unit, 2007). This research shows that teachers are not accessing that site; therefore, the resources dedicated to developing this web site and the procedures of sharing the material with teachers should be closely examined.

Related Question #3

Question: Does teacher implementation of researched-based teaching strategies impact Mississippi Allied Health program MS-CPAS2 scores?

When teachers used a variety of teaching strategies, Mississippi Allied Health program MS-CPAS2 scores increased. In order to answer this question, data from the Instructional Strategy section of the survey were used. This section of the survey included information related to the use of researched-based instructional strategies that have been proven to increase student learning. A summary of participant responses can be found in Table 3.24.

Table 3.24

Description of Instructional Strategies Variables

***N*=49**	Possible Responses	Frequency of Responses	MS-CPAS 2 Mean by Responses
Lecture and Notetaking	0 (Never)	0	0.00
	1(Almost Never)	0	0.00
	2 (Sometimes)	15	52.76
	3 (Almost Always)	24	51.86
	4 (Always)	10	49.54
Brainstorming	0 (Never)	1	42.14
	1(Almost Never)	2	51.50
	2 (Sometimes)	29	51.45
	3 (Almost Always)	9	53.82
	4 (Always)	5	51.10
Cooperative Learning	0 (Never)	0	0.00
	1(Almost Never)	2	55.94
	2 (Sometimes)	24	49.95
	3 (Almost Always)	20	35.17
	4 (Always)	3	52.48
Simulation and Role-playing	0 (Never)	0	0.00
	1(Almost Never)	3	50.96
	2 (Sometimes)	29	50.62
	3 (Almost Always)	15	54.52
	4 (Always)	2	46.42
Problem-based Learning	0 (Never)	0	0.00
	1(Almost Never)	4	52.72
	2 (Sometimes)	22	51.98
	3 (Almost Always)	19	52.33
	4 (Always)	4	45.74
Similarities and Differences	0 (Never)	0	0.00
	1(Almost Never)	5	51.20
	2 (Sometimes)	27	51.42
	3 (Almost Always)	11	53.53
	4 (Always)	6	49.73
Nonlinguistic Representations	0 (Never)	2	52.71
	1(Almost Never)	11	50.65
	2 (Sometimes)	25	51.81
	3 (Almost Always)	7	54.70
	4 (Always)	1	45.91

Table 3.24 (continued)

***N*=49**	Possible Responses	Frequency of Responses	MS-CPAS 2 Mean by Responses
Field Trips	0 (Never)	2	56.09
	1(Almost Never)	1	35.92
	2 (Sometimes)	20	52.04
	3 (Almost Always)	20	52.81
	4 (Always)	6	47.74
Technology Integration	0 (Never)	0	0.00
	1(Almost Never)	2	50.75
	2 (Sometimes)	20	50.92
	3 (Almost Always)	21	53.04
	4 (Always)	6	49.61
Writing and Journaling	0 (Never)	0	0.00
	1(Almost Never)	8	51.71
	2 (Sometimes)	26	51.63
	3 (Almost Always)	9	52.22
	4 (Always)	6	50.92
Demonstration and Guided Practice	0 (Never)	0	0.00
	1(Almost Never)	0	0.00
	2 (Sometimes)	8	53.27
	3 (Almost Always)	28	51.81
	4 (Always)	13	50.36
Visuals	0 (Never)	0	0.00
	1(Almost Never)	2	58.20
	2 (Sometimes)	2	47.22
	3 (Almost Always)	34	51.14
	4 (Always)	11	52.90
Work Study	0 (Never)	7	46.70
	1(Almost Never)	3	51.08
	2 (Sometimes)	19	52.01
	3 (Almost Always)	13	53.22
	4 (Always)	6	52.70
Drawing and Artwork	0 (Never)	1	48.53
	1(Almost Never)	8	49.40
	2 (Sometimes)	28	52.60
	3 (Almost Always)	8	53.58
	4 (Always)	4	46.56
Reciprocal Teaching	0 (Never)	1	51.25
	1 (Almost Never)	7	54.81
	2 (Sometimes)	30	50.99
	3 (Almost Always)	9	53.55
	4 (Always)	2	42.48

Description and Analysis

Because of the small cell size and the inability to group data into meaningful groups, inferential statistics are not appropriate for analysis. No specific instructional strategies that had an impact on student MS-CPAS2 scores. However, there are many things that we can learn from the descriptive statistics.

First, descriptive statistics indicate that participants who chose a variety of research-based instructional strategy had students who scored higher on MS-CPAS2. This finding is apparent because in all of the strategies except for cooperative learning, the MS-CPAS2 mean by response score was lower in the categories of "never" and "always." From this observation, it is apparent that teachers who never use these strategies or those who always use a particular strategy are not as effective as those who selected "almost never," "sometimes," or "almost always." This finidng supports the research by Tate (2003), Gregory and Chapman (2002), and Marzano et al. (2001). The survey requested that participants indicate a frequency of use for each strategy by having participants select (a) "Never," (b) "Almost never," (c) "Sometimes," (d) "Almost always," and (e) "Always" for each strategy. With the exception of field trips, participants who chose always or never had lower MS-CPAS2 program area scores than those who selected "almost never," "sometimes," and "almost always."

Related Question #3 Summary

The intent of this section of the survey was to determine if one or more specific instructional strategies had a positive or negative impact on student MS-CPAS2 scores.

The survey question was unsuccessful at meeting this intent. Although there was no specific instructional strategy that had a positive of negative impact on student MS-CPAS2 scores, it is very apparent that teachers are using an array of instructional strategies. This finding is apparent as a few teachers selected “Never” or “Always” on the survey and those who did had lower student MS-CPAS2 scores. Student MS-CPAS2 scores were higher when teachers used these strategies “Almost never,” “Sometimes,” or “Almost always.”

Related Question #4

Question 4: Do teacher experience, education, and certification impact Mississippi Allied Health program MS-CPAS2 scores?

Teacher experiences, education, and certification impact Mississippi Allied Health program MS-CPAS2 scores. In order to answer this question, the Teacher Experience section of the survey was used. The researcher used descriptive and inferential statistics to analyze the data. It is interesting to note that 90% of the teachers who responded to the survey have been teaching 1 – 15 years (n-44). Responses indicated that all participants have industry experience and have completed a postsecondary education experience. Finally, 90% of the teachers completed an alternative teacher education certification program. A summary of participants’ responses to the teacher experience, education, and certification section of the researcher-created survey can be found in Table 3.25.

Table 3.25

Description of Teacher Experience, Education, and Certification Variables

***N*=49**	Possible Responses	Frequency of Responses	MS-CPAS 2 Mean by Responses
Teaching Experience	1 – 5 (years)	18	48.02
	6 – 10 (years)	12	54.17
	11 – 15 (years)	14	52.58
	16 – 20 (years)	3	53.13
	21 – 25 (years)	1	46.94
	26 – 30 (years)	0	0.00
	30 + (years)	1	53.00
Industry Experience	1 – 5 (years)	2	45.42
	6 – 10 (years)	10	52.45
	11 – 15 (years)	16	52.19
	16 – 20 (years)	5	48.63
	21 – 25 (years)	5	52.56
	26 - 30 (years)	6	51.43
	30 + (years)	0	0.00
Highest Degree	1 Associate's Cert.	3	45.71
	2 Associate's Degree	17	49.66
	3 Bachelor's Degree	18	52.83
	4 Master's Degree	8	54.11
	5 Ed. Spec. Degree	1	54.32
	6 Doctor's Degree	2	56.05
Teacher Certification	1 Pre VIP	26	52.89
	2 VIP	18	50.96
	3 Teacher Program	6	47.81

Teacher Experience

When analyzing the descriptive statistics, the researcher found no extreme scores. Because of small cell size, the data were recoded into three groups: (a) 1 – 5 years of experience, (b) 6 – 10 years of experience, and (c) 11 or more years of experience. In a check of posttest scores for homogeneity of variance, via the Levene Statistic, there was no violation of the assumption, $p>.05$. There is a statistically significant difference

between groups, F (2, 45) = 3.28, MSE = 107.92. Follow-up tests using the Bonferoni post hoc procedure at the level of .05 indicate that there is a statistically significant difference between those with 6 – 10 years of experience (M=54.17, SD=5.38, n=12) and those who had 1 – 5 years of experience (M=49.02, SD=6.55, n=18). No other differences were statistically significant. A summary of the ANOVA table can be found in Table 3.26.

Table 3.26

Teacher Experience ANOVA Table

		Sum of Squares	Df	Mean Square	F	Sig.
Teaching Experience	Between Groups	215.85	2	107.92	3.280	.047*
	Within Groups	1480.88	45	32.90		
	Total	1696.73	47			

**Indicates significance*

These results indicate that teachers with 6 – 10 years of experience have students who score higher on MS-CPAS2. Experienced teachers are more equipped with extensive pedagogic skills and are also better managers of classroom problems and student learning. This study supports the research with this finding, but also contrasts the research related to teacher experience. Those with 11 or more years of experience scored higher than those with 1 – 5 years of experience, but lower than those with 6 – 10 years of experience. A potential reason for the contrast may be the low cell size.

Industry Experience

Because of small cell size and the inability to group data into meaningful groups, inferential statistics are not appropriate. Descriptive statistics indicate that the lowest MS-CPAS2 Mean by Response score for teachers who have 1 – 5 years of experience (M=45.42, n=2) and those who selected 16 – 20 years of experience (M=48.63, n=5) were the lowest score of all groups. It is important to note that there were no extreme scores in these two groups but both groups had very small cell sizes.

MS-CPAS2 Mean by Response scores were higher and more consistent for those who selected 6 – 10 years of experience (M=52.45, n=10), those who selected 11 – 15 years of experience (M=52.19, n=16), those who selected 21 – 25 years of experience (M=52.56, n=5), and those who selected 26 – 30 years of experience (M=51.43, n=6).

Campbell et al. (2003) indicate that a characteristic of an effective teacher is one who has a strong knowledge in subject knowledge. Mississippi career and technical educators may be able to attribute some of their subject knowledge to experience in industry (L. Long, personal communication, February 24, 2007). These data may support this research. Teachers who had more than 5 years of experience had students who scored higher on MS-CPAS2 than teachers who had 1 – 5 years of experience. These data indicate that teachers are gaining valuable content knowledge from industry experience. This information is valuable to the MDE and the RCU. Both organizations may be able to offer continuing education units (CEU) to teachers who spend time in a summer externship in an industry related to their field.

Teacher Education Experience

Descriptive statistics indicate that as teachers' level of education increased, their MS-CPAS2 Mean by Response score increases. Figure 3.1 clearly shows that the teachers' level of education increased their MS-CPAS2 program area scores.

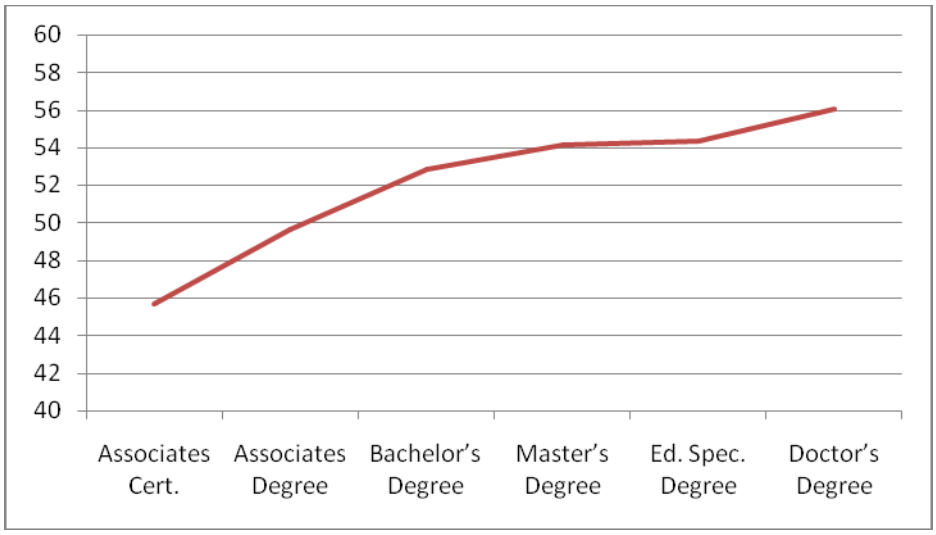

Figure 3.1

Teacher Education Level and MS-CPAS2 Student Score Chart

Because of small cell size, the data were recoded into three groups: (a) associate's certificate or degree (a combination of those who selected associate's certificate or associate's degree), (b) bachelor's degree (those who selected bachelor's degree), and (c) graduate degree (those who selected a master's degree, an education specialist's degree, and doctor's degree). In a check of posttest scores for homogeneity of variance, via the Levene Statistic, there was no violation of the assumption, $p>.05$. A statistically significant difference was found between groups, F (2, 46) = 3.90, MSE = 123.25. Follow-up tests using the Bonferoni post hoc procedure at the level of .05 indicate that

there is a statistically significant difference between those with an associate's certificate or degree (M=49.07, SD=5.57, n=20) and those who have a graduate degree (M=54.48, SD=4.14, n=11). Those who have a graduate degree have students who score higher on MS-CPAS2 than those students who have teachers who have an associate's degree or certificate. No other differences were statistically significant. A summary of the ANOVA table can be found in Table 3.28.

Table 3.28

Teacher Education Experience ANOVA Table

		Sum of Squares	Df	Mean Square	F	Sig.
Teacher Education Experience	Between Groups	246.50	2	123.25	3.90	.027*
	Within Groups	1452.04	46	31.56		
	Total	1698.54	48			

This analysis reveals that the teachers who have a graduate degree have higher student MS-CPAS2 scores than those who have an associate's certificate or degree. Findings from this study add to the body of knowledge related to a teacher's level of education and student learning. In a recent study with Mississippi Allied Health teachers, results showed that Mississippi Allied Health students scored higher in classrooms where they had teachers who held a bachelor's degree or a higher level of degree (Jarvis, 2006).

Teacher Certification

In order to analyze data, variables were recoded into two variables: (a) program based on NCATE standards (those who selected a teacher program or VIP) and

(b) program that was not based on NCATE standards (those who selected pre VIP). Both the VIP program and the teacher four-year teacher education programs are based on NCATE standards. The alternative certification program prior to VIP was not based on NCATE standards. When analyzed with an ANOVA, there was no statistical significance difference. A summary of the ANOVA table can be found in Table 3.29.

Table 3.29

Teacher Experience ANOVA Table

		Sum of Squares	Df	Mean Square	F	Sig.
Teacher Certification	Between Groups	83.346	1	83.346	2.425	.126
	Within Groups	1615.200	47	34.366		
	Total	1698.547	48			

Although there was no statistical significant difference, it is important to note that when analyzed with descriptive statistics, results show that those who completed a teacher education program that was based on NCATE standards (M=52.89, SD=5.13, n=26) had students who scored higher than those who did not complete a teacher education program (M=50.28, SD=6.58, n=23). This research indicates that teacher preparation programs, whether a traditional education program or an alternative route program, should be based on national teacher preparation standards.

Related Question #4 Summary

Results from this study reveal teachers with 6 – 10 years of experience have students who score higher on MS-CPAS2 than students who have teachers with 1 – 5

years of experience. Additionally, Allied Health teachers who have a graduate degree have students who score higher on MS-CPAS2 than students who have teachers who have an associate's degree or certificate.

Summary

This was the first attempt to compare teacher characteristics of vocational and technical educators to MS-CPAS2 program area scores. It provided information that can be used by the MDE and RCU to make decisions about curriculum and instruction.

The research question is as follows: Do teacher characteristics impact Mississippi vocational and technical program MS-CPAS2 scores? Overall, this study yielded positive findings that teacher characteristics impact student learning as measured by MS-CPAS2.

Question 1: Does teacher participation in professional learning opportunities impact Mississippi Allied Health program MS-CPAS 2 scores? Yes, teacher's professional learning does impact student learning. Data analysis shows that students who had teachers who attended 1 – 2 professional learning sessions had a higher student mean score on MS-CPAS2 tests than students who had teachers who attended three or more face-to-face professional learning sessions. Findings from this study overwhelmingly supported findings from the National Staff Development Council (2007) which indicated that professional learning should be focused. Analysis of data from this study indicates that the quantity of professional learning sessions should be few, but focused. Data analysis proves that the time and effort that the RCU has spent on data retreat sessions and MS-CPAS2 practice test are being utilized by teachers. Finally, findings from this

study are in direct contrast related to National Board Certification research (Vandevoort, et al., 2004) which stated that student learning increases when their teacher is national board certified. This is the first study that looks at Mississippi Allied Health educators students and teachers who are national board certified. Additionally, it is important to note the unequal cell size when discussing this finding.

Question 2: Does teachers' use of curriculum and instruction resources impact Mississippi Allied Health program MS-CPAS2 scores? Although results were inconclusive related to the use of curriculum and instruction resources and student learning, findings do show that teachers are using the traditional resources provided by the RCU. These findings indicate that the MDE and RCU should continue to provide these resources to teachers and ensure they are of the highest quality. Also, teachers use traditional resources more than electronic resources. This is important for the MDE and RCU to keep in mind when spending budgetary and training resources related to electronic curriculum and instruction materials.

Question 3: Does teachers implementation of researched-based teaching strategies impact Mississippi Allied Health program MS-CPAS2 scores? Yes, results from this study show that the implementation of research-based teaching strategies impact Mississippi Allied Health program MS-CPAS2 scores. Data analysis shows that when teachers implement work-based learning, student learning increases. Additionally, results from this study show that teachers should have a large toolbox of instructional strategies that they can pull from when planning instruction. Those teachers who always

or never used a research-based teaching strategy had students who scored lower on MS-CPAS2 than those who indicated that they sometimes used the strategy.

Question 4: Do other teacher characteristics impact Mississippi Allied Health program MS-CPAS2 scores? Yes, results from this data analysis indicate that teacher experience impacts Mississippi Allied Health program MS-CPAS2 score. This data analysis showed that teachers with 6 – 10 years of experience have students who score higher on MS-CPAS2 than students who have teachers with 1 – 5 years of experience. Additionally, Allied Health teachers who have a graduate degree have students who score higher on MS-CPAS2 than students who have teachers who have an associate's degree or certificate. Descriptive statistics indicate that as the education level of Allied Health teachers increased, student learning increased. Effective 2008, CTE teachers who are hired after 2008 are required to have an associate's degree. Findings from this study support increasing that requirement to a bachelor's degree.

CHAPTER IV

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

The research question is as follows: Do teacher characteristics impact Mississippi vocational and technical program MS-CPAS2 scores? To answer this question, a survey was created that was composed of questions related to teacher characteristics concerned with professional learning, the use of curriculum and instruction resources, the use of research-based instructional strategies, and other teacher characteristics. The survey was administered to 49 Mississippi Allied Health teachers. Data were collected and analyzed.

This chapter begins with a summary of the literature review, the research methodology, and findings of the study. This summary is followed by conclusions drawn from the data analysis and recommendations for the MDE, RCU, and future research.

Summary

Literature Review

The most important factor affecting student learning is the teacher. More can be done to improve education by improving the effectiveness of teachers than by any other single factor (Wright et al.,1997). Currently, career and technical administrators and educators have found it necessary to examine teaching techniques and student learning because of the new Perkins IV Act. Components of this federal legislation that funds

career and technical education require that career and technical educators be held accountable for student learning, which is forcing them to implement classroom instructional practices that are proven to increase student learning. A majority of the research related to the use of research-based instructional strategies has been gathered in the areas of academic elementary, secondary, and university classrooms. It is important to expand the body of research to include an examination of variables that may affect student learning in career and technical education.

Accountability requirements found in Perkins IV (2006) relied heavily on the results of standardized tests. In Mississippi, the occupation-specific portion of the Mississippi Career and Planning and Assessment System, Edition 2, (MS-CPAS2) is used to establish accountability for student attainment of career and technical proficiencies that are aligned with industry-recognized standards (Research and Curriculum Unit, 2007).

Not only do career and technical educators have accountability issues in the new Perkins IV (2006) legislation to consider, but they also have the needs of the expanding Mississippi's workforce. The 21st century economy requires highly skilled, adaptable, and innovative workers who are prepared to continuously learn. Therefore, secondary education students need to be lifelong learners who are prepared for the changing global economy, no matter what their career and education goals are (Hyslop, 2006).

Federal legislation encouraged educational researchers to begin examining instructional practices that have been proven to increase student learning. An in-depth look at research-based instructional strategies that are proven to increase student learning can be found in Chapter 1. Although each instructional strategy was discussed in detail,

the theme throughout the literature review was that teachers should have a variety of instructional strategies to pull from when planning instruction (Marzano et al., 2001; Tate, 2003), and should differentiate student learning methodologies based on the needs and learning styles of learners' information (Gregory & Chapman, 2002).

Other characteristics, such as the participation in professional learning, were also discussed in the literature. Darling-Hamond and Berry (2006) report that there is a direct relationship between teacher quality and student learning. Currently, career and technical educators in Mississippi have the opportunity to complete online and face-to-face professional learning opportunities and collaborate with teachers in their related field electronically.

Career and technical educators have classroom, education, and occupational experience to draw upon. One report indicated that classroom experience is a primary characteristic of effective teachers (Egyed & Short, 2006). Another report concluded that experienced teachers are more equipped with extensive pedagogic skills and are also better managers of classroom problems and student learning (Muijs, D., Campbell, J., et al., 2005). Additionally, Glasgow and Hicks (2003) reported that teachers don't truly learn their craft until they have been teaching at least five to six years.

Effective teachers not only have a strong knowledge of teaching skills and pedagogical concepts, but they also have strong subject knowledge (Campbell, Kyriakides, & Robinson, 2003). Mississippi career and technical educators may be able to attribute their subject knowledge to the completion of a related career and technical secondary or postsecondary program or certificate and industry experience.

Methodology

To determine possible causes of differences between student MS-CPAS2 program scores, a causal-comparative research design was used in this study. Data were collected using the survey. In this study, the researcher compared program area MS-CPAS2 scores, the dependent variable, to the independent variables which consisted of variables which may impact MS-CPAS2 program scores. Descriptive and inferential statistics were used to determine if the independent variables had an impact on the dependent variable.

Of the 99 Allied Health Teachers in the state of Mississippi, 49 responded to the researcher-created survey. Of the 99 contacted, 10 were classified as new teachers and could not be used in this study because they were not teaching when the MS-CPAS2 was administered. The return rate was 55% (49 of 89). Only the program area scores from teachers who responded were used in this study. The participants who returned the survey were representative of the population of Allied Health teachers in geographic regions, similar program area MS-CPAS2 scores, and number of students per program. Because of this, the analysis of data from the participants who responded to survey can be generalized to the population of Mississippi Allied Health teachers.

Findings

The research question for this study was whether teacher characteristics impacted Mississippi vocational and technical program MS-CPAS2 scores. Several related questions that were considered to help address the research question. They were as follows.

Question 1: Does teacher participation in professional learning opportunities impact Mississippi Allied Health program MS-CPAS2 scores? In order to answer this question, data from the professional learning section of the survey were used. This study found that that students who had teachers who attended 1 – 2 professional learning sessions had a higher student mean score on MS-CPAS2 tests than students who had teachers who attended 3 or more face-to-face professional learning sessions. Additionally, more Allied Health instructors are participating in face-to-face professional learning than online professional learning. Although a majority of the participants are not attending the data retreat sessions, those who attend have lower MS-CPAS2 scores than those who do not attend. This may indicate that teachers and administrators are realizing the importance of using data to make decisions, and those who are not scoring well on MS-CPAS2 are attending the data retreat session in hopes of gaining valuable information that they can use to improve student learning in their classroom. Finally, 75% of the Allied Health teachers who responded to the survey are making instructional changes based on data and 88% of the participants used the MS-CPAS2 practice test.

Question 2: Does teacher use of curriculum and instruction resources impact Mississippi Allied Health program MS-CPAS 2 scores? In order to answer this question, data from the Use of Curriculum and Assessment Resources section of the survey was used. Although no statistically significant differences were found when analyzing the curriculum and instruction variables, descriptive analysis showed that Allied Health teachers are using the curriculum framework, the teaching strategies that are in the curriculum framework, and the assessment strategies that are in the curriculum

framework when planning instruction. Participants are not using the electronic resources that are posted on the B.R.I.D.G.E. web site, but they are utilizing the communication tools, such as e-mail, discussion boards, and announcements on the web site.

Question 3: Does teacher implementation of researched-based teaching strategies impact Mississippi Allied Health program MS-CPAS2 scores? In order to answer this question, data from the Instructional Strategy section of the survey were used. Descriptive statistics indicate that participants who chose a variety of research-based instructional strategies had students who scored higher on MS-CPAS2.

Question 4: Do other teacher characteristics impact Mississippi Allied Health program MS-CPAS 2 scores? In order to answer this question, the researcher used the Teacher Experience section of the survey. Ninety percent of the teachers went through an alternative teacher education certification program. Additionally, results from this study indicate that teachers with 6 – 10 years of experience have students who score higher on MS-CPAS2. Teachers with 1 – 5 years of experience have students who scored lower on MS-CPAS2. Finally, Allied Health teachers who have a graduate degree have students who score higher on MS-CPAS2 than those students who have teachers who have an associate's degree or certificate.

Conclusions

Based on the findings of this study, several conclusions were drawn related to whether teacher characteristics had an impact on MS-CPAS2 program area scores. These conclusions are as follows.

First, teachers are participating more in face-to-face professional learning than in online professional learning. Additionally, participants are using the MS-CPAS2 practice test, but it is not having an effect on student learning outcomes. This may mean that the validity of the MS-CPAS2 practice test needs to be examined so that teachers will be able to use it in preparation for the MS-CPAS2. Also, teachers are not attending the data retreat sessions, but those who do attend seem to have lower MS-CPAS2 program area scores. This may mean that those who have high scores feel comfortable with their instructional techniques. Finally, 75% of the Allied Health teachers who responded to the survey are making instructional changes based on data from the MS-CPAS2 exam. Teachers are seeing the importance of accountability and are using data to make decisions in their classrooms.

Second, information learned from the use of curriculum and instruction analysis is essential information for the RCU and the MDE. All teachers are using the curriculum framework; therefore, it is important that the information in the curriculum framework be standards-based and research-based. Teaching and assessment strategies should be based on research that is proven to increase student learning. Additionally, the RCU and the MDE spend resources, such as time and money, building the B.R.I.D.G.E. web site, and this research shows that teachers are not accessing that site. The resources dedicated to developing this web site and the procedures of sharing the material with teachers should be closely examined.

Third, this analysis indicates that participants who choose a variety of research-based instructional strategies had students who scored higher on MS-CPAS2. This means

that more professional learning should be dedicated to sharing best practices and research-based instructional strategies. Teachers should build their toolbox of instructional strategies and understand the fundamentals of differentiating their instruction based on student needs and learning styles.

Finally, because 90% of the teachers completed an alternative teacher education certification program, it is important that the alternative route certification program be of the highest standards. Additionally, it is important that the mentoring component of the alternative route certification program be effective to support those who have 1 – 5 years of experience. Allied Health teachers who have a graduate degree have students who score higher on MS-CPAS2 than those students who have teachers who have an associate's degree or certificate.

Recommendations

MDE and RCU

Based on the findings of this study, the following recommendations are offered for MDE and RCU decision makers.

1. This study indicates that Allied Health Teachers are participating in face-to-face professional learning more than online professional learning. The researcher recommends that decision makers consider evaluate the face-to-face professional learning sessions that are being offered to ensure they are impacting student learning. Then, more of these face-to-face sessions should be offered to teachers or the MDE and RCU should create

incentives for teachers and administrators to move toward using online professional learning.

2. This study indicates that teachers are using the traditional resources when planning instruction. The researcher recommends that the curriculum framework become a one-stop-shop for strategies that are proven to increase student learning that teachers can use when planning instruction. The teaching and assessment strategies need to be more detailed and there needs to be more of them. Additionally, the teaching and assessment strategies in the curriculum framework need to be evaluated to ensure that they are effective at increasing student learning.
3. This study indicates that teachers are not using electronic resources when planning instruction. Teachers need to understand the importance of this resource and need to use it. The quality of the information posted on this site should be closely examined and should be aligned to the curriculum and assessment blueprint. Professional learning sessions could be offered for teachers to build materials that could be posted on the site.
4. This study indicates that teachers score lower on MS-CPAS2 when they have 1 – 5 years of teaching experience, and those with 6 or more years of experience score higher. The mentoring program needs to be strengthed and include strategies for improving student learning.
5. This study indicates that teachers are using the MS-CPAS2 practice test, but the use of the test does not impact student learning. The validity and

reliability of the MS-CPAS2 practice test need to be examined. The practice test needs to be updated based on the examination of validity and reliability.

6. This study indicates that student learning increases when teachers have advanced degrees. As teacher education increases, so does student achievement. Because of these findings, the MDE should examine incentives and licensure requirements for CTE teachers to continue their education to obtain a four-year or graduate degree.

Future Research from this Initial Study

This study was designed to be an initial pilot study for all of the other secondary career and technical education courses offered in the state of Mississippi. A list of recommendations of future research conducted from this pilot study is as follows.

1. In order to improve the process and procedures of conducting this study and to better manage the discrimination of the survey and data analysis, the survey should be deployed to all career and technical educators using an electronic survey, such as Zoomerang®. The survey link should be posted to all B.R.I.D.G.E. websites, sent over Lotus Notes® (the vocational administrator/director communication tool), and snail mailed to all instructors in a memo. The memo should direct teachers to a web site to complete the survey electronically.

2. Questions should be modified in the professional learning, use of curriculum and assessment resources, and experience sections to allow participants to write in responses instead of selecting from a range provided on the survey. This will allow the researcher to examine the data in more detail, and group responses into meaningful categories for analysis. Additionally, it is important to collect data related to teacher technology literacy. This could influence teachers' use of electronic resources. A recommendation of the revised survey based on lessons learned from this model study can be found in Appendix D.
3. Information related to frequency of instructional strategies should be collected in a qualitative format. The researcher should examine MS-CPAS2 scores and select teachers who have high scores and low scores. Visits should be made to the teachers' classrooms for observation, lesson plans should be collected, and interviews with teachers should be conducted. The researcher should use the observations, lesson plan collection, and interviews to learn what teaching strategies the teachers with high student MS-CPAS2 scores are using and what teaching strategies the teachers with low student MS-CPAS2 scores are using.
4. Data from the researcher-created survey should be gathered for all career and technical educators who teach occupation-specific programs that are measured by MS-CPAS2.

Future Research

The results of this research could be a basis for future studies. A list of recommendations of the researcher for future studies is as follows.

1. Future study to examine why teachers are not participating in online participant. This research would add knowledge to determine how to better offer professional learning opportunities to teachers.
2. Future study to evaluate the validity and reliability of MS-CPAS2 practice tests. This could be a great resource for teachers who want to improve MS-CPAS2 program area scores.
3. Future study to evaluate the teaching and assessment strategies that are included in the MS-CPAS2 curriculum framework. If strategies do not increase student learning, they should be removed from the curriculum framework and replaced with those that do increase student learning.

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APPENDIX A:

IRB APPROVAL LETTERS

Mississippi State University

May 7, 2007

Robin Parker
Research and Curriculum Unit
Mailstop 9636
Mississippi Stste, MS 39762

RE: IRB Study #07-128: The Impact of Research-Based Instructional Strategies on Mississippi Secondary Workforce Education Programs

Dear Ms. Parker:

The above referenced project was reviewed and approved via expedited review for a period of 5/7/2007 through 4/15/2008 in accordance with 45 CFR 46.110 #7. Please note the expiration date for approval of this project is 4/15/2008. If additional time is needed to complete the project, you will need to submit a Continuing Review Request form 30 days prior to the date of expiration. Any modifications made to this project must be submitted for approval prior to implementation. Forms for both Continuing Review and Modifications are located on our website at http://www.msstate.edu/dept/compliance.

Any failure to adhere to the approved protocol could result in suspension or termination of your project. Please note that the IRB reserves the right, at anytime, to observe you and any associated researchers as they conduct the project and audit research records associated with this project.

Please refer to your docket number (#07-128) when contacting our office regarding this project.

We wish you the very best of luck in your research and look forward to working with you again. If you have questions or concerns, please contact me at cwilliams@research.msstate.edu or by phone at 662-325-5220.

Sincerely,

Christine Williams
IRB Compliance Administrator

cc: Hare, Dwight

Office for Regulatory Compliance
P. O. Box 6223 • 8A Morgan Street • Mailstop 9563 • Mississippi State, MS 39762 • (662) 325-3294 • FAX (662) 325-8776

Mississippi State University

May 7, 2007

Robin Parker
Research and Curriculum Unit
Mailstop 9636
Mississippi Stste, MS 39762

RE: IRB Study #07-127: The Impact of Research-Based Instructional Strategies on Mississippi Secondary Workforce Education Programs

Dear Ms. Parker:

The above referenced project was reviewed and approved via expedited review for a period of 5/7/2007 through 4/15/2008 in accordance with 45 CFR 46.110 #5. Please note the expiration date for approval of this project is 4/15/2008. If additional time is needed to complete the project, you will need to submit a Continuing Review Request form 30 days prior to the date of expiration. Any modifications made to this project must be submitted for approval prior to implementation. Forms for both Continuing Review and Modifications are located on our website at http://www.msstate.edu/dept/compliance.

Any failure to adhere to the approved protocol could result in suspension or termination of your project. Please note that the IRB reserves the right, at anytime, to observe you and any associated researchers as they conduct the project and audit research records associated with this project.

Please refer to your docket number (#07-127) when contacting our office regarding this project.

We wish you the very best of luck in your research and look forward to working with you again. If you have questions or concerns, please contact me at cwilliams@research.msstate.edu or by phone at 662-325-5220.

Sincerelv.

Christine Williams
IRB Compliance Administrator

cc: Dwight Hare

Office for Regulatory Compliance
P. O. Box 6223 • 8A Morgan Street • Mailstop 9563 • Mississippi State, MS 39762 • (662) 325-3294 • FAX (662) 325-8776

APPENDIX B:

RESEARCHER-CREATED SURVEY

Researcher Created Survey

Fax:662-325-3296
Phone: 662-325-2510
Email: robin.parker@rcu.msstate.edu
Address: PO Drawer DX, MsState, MS 39762

Directions: Please complete the following survey. Your responses will remain confidential. Return this survey to **Robin Parker** in person or at the address listed above.

Teacher Name: _____

1 Professional Learning

Directions: Answer the following statements or questions by placing an **X** in the appropriate box.

1. Indicate the number of face-to-face workshops offered by the MDE or RCU within the past 3 years that you have successfully completed (check one):
   ☐ 0 ☐ 1 – 2 ☐ 3 - 4 ☐ 5 or above
2. Indicate the number of online workshops offered by the MDE or RCU within the past 3 years that you have successfully completed (check one):
   ☐ 0 ☐ 1 – 2 ☐ 3 - 4 ☐ 5 or above
3. Did you attend the 2005 Data-retreat sessions sponsored by the RCU?
   ☐ Yes ☐ No
4. Did you modify your instruction during the 2006-07 school year based on 2006 MS-CPAS test scores?
   ☐ Yes ☐ No
5. Did you use the MS-CPAS practice test to prepare your students for the 2007 MS-CPAS test?
   ☐ Yes ☐ No
6. Have you successfully completed the National Board for Professional Teaching Certification (National Board Certification)?
   ☐ Yes ☐ No

2 Use of Curriculum and Assessment Resources

Directions: Place and **X** in the appropriate box to indicate how often you use the curriculum and assessment resources listed below.

		Never	Almost Never	Sometimes	Almost Always	Always
1.	I refer to my program area's state curriculum framework when developing lesson plans and activities for my students.					
2.	I implement teaching strategies found my program area's state curriculum framework.					
3.	I implement assessment strategies found in my program area's state curriculum framework.					
4.	I use instructional resources from my program area's B.R.I.D.G.E. website.					
5.	I communicate with colleagues using my program area's B.R.I.D.G.E website.					
6.	I communicate with colleagues using my program area's listserv.					

Researcher Created Survey

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3 Frequency of Instructional Strategies

Directions: Place an **X** in the appropriate box to indicate your degree of frequency with each of the following teaching strategies. Refer to page 3 – 4 for a short summary of each instructional strategy.

	Never	Almost Never	Sometimes	Almost Always	Always
Lecture and Notetaking					
Brainstorming					
Cooperative Learning					
Simulation and/or Role Playing					
Problem Based Learning					
Similarities and Differences					
Nonlinguistic Representations					
Field Trips					
Technology					
Writing and Journals					
Demonstration/Guided Practice					
Visuals					
Work Study and Apprenticeships					
Drawing and Artwork					
Games					
Reciprocal Teaching					

4 Experience

Directions: Answer the following statements or questions by placing an **X** in the appropriate box.

1. Number of years of teaching experience (check one):
   ☐ 1 – 5 ☐ 6 – 10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ 30+
2. Number of years of occupational experience related to subject being taught (check one):
   ☐ 1 – 5 ☐ 6 – 10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ 30+
3. Indicate how you met the teacher certification requirements for vocational educator licensure:
   - ☐ Alternate route certification prior to 2003
   - ☐ Alternate route certification after 2003 (VIP program)
   - ☐ Traditional route by completing a baccalaureate degree from a teacher education program
4. Indicate your successful completion of the following (check all that apply):
   - ☐ High school diploma
   - ☐ High school equivalency certificate (ex. GED)
   - ☐ Secondary career and technical program related to subject being taught
   - ☐ Secondary career and technical program *not* related to subject being taught
   - ☐ Postsecondary career and technical program related to subject being taught
   - ☐ Postsecondary career and technical *not* program related to subject being taught
5. Indicate highest degree held:
   - ☐ Associate's certificate
   - ☐ Associate's degree
   - ☐ Bachelor's degree
   - ☐ Master's degree
   - ☐ Educational Specialist's degree
   - ☐ Doctor's degree
   - ☐ High school diploma
   - ☐ High school equivalency certificate (ex. GED)

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Instructional Strategy Summary

Lecture and Notetaking
Lecture is defined as an instructor providing information directly to students. Notetaking involves the students writing, organizing, and analyzing information from the instructor's lecture.

Brainstorming
Brainstorming is a instructional methods that is used to determine students' prior knowledge about a topic. When brainstorming, students generate many ideas related to a topic, analyze their thoughts, and then refine those ideas into information.

Cooperative Learning
Cooperative learning refers to small groups of students working together to achieve a common learning goal and a collaborative relationship among participants.

Simulation and/or Role Playing
This instructional strategy replicates the way knowledge is used outside of school. Simulations and role-playing provide students with the opportunity to organize information, create or re-create meaningful situations, and use their verbal and interpersonal skills.

Problem Based Learning
Problem-based learning involves multiple learning strategies and allows students to use critical thinking skills to investigate and solve real-world problems. Problem-based instruction links new information to previously stored information that enables students to realize that they already have some knowledge about the new topic and that the activity is relevant to their personal lives.

Similarities and Differences
Identifying similarities and differences involves having students explain how items, events, processes, or concepts are similar and different. Students can accomplish this in a variety of ways, including comparing, classifying, creating metaphors, and creating analogies.

Nonlinguistic Representations
Nonlinguistic Representations allow students to represent knowledge they have learned using graphs, pictures, diagrams, flow charts, or other types of graphic organizers.

Field Trips
Field trips provide students with real-world experiences that make the subsequent learning more understandable and memorable. Field trips planned in a way that they enhance learning that is taking place in the classroom and/or curriculum framework.

Technology
This teaching strategy involves using interactive media, the Internet, productivity tools, or other technology tools when instructing students.

Writing and Journals
Writing and journaling are ways for students to organize their knowledge and reinforce concepts. Writing can involve completing works using the writing process which consists of prewriting, writing, proofreading, revising, and rewriting. It can also involve quick writes that enable students to use crucial skills in a multitude of cross-curricular ways for short periods of time.

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Demonstration/Guided Practice
When using this instructional strategy, educators introduce and demonstrate concepts through the used of examples. After the demonstration, students are given additional problems to practice the operation.

Visuals
Computers, videos, and pictures are all samples of using visual imagery as a teaching strategy. Other types of visuals may include overheads, presentations, maps, graphs, charts, and other artifacts that clarify the learning.

Work Study and Apprenticeships
This type of instructional strategy affords students the exposure in school to a wide variety of experiences that help students determine possible career choices and actual on-the-job work experiences that prepare students for success in the real world.

Drawing and Artwork
This instructional strategy involves allowing students to express learning by drawing or creating artwork.

Games
This instructional strategy can be used to motivate students or to assess student learning. Students compete against one another to come up with the answers.

Reciprocal Teaching
Reciprocal teaching gives students opportunities for students to teach and learn from one another. Peer tutoring, a form of reciprocal teaching can promote learning at virtually all grades and school levels.

APPENDIX C:

EXPERT REVIEWER BIOGRAPHIES

Shelley Bock, NBCT®

As Assistant Director of the Research and Curriculum Unit at Mississippi State University, Ms. Bock develops and coordinates various special projects, programs, institutional protocols, and initiatives. She provides oversight for facilities management, public relations, the RCU Media Center, and special projects and processes, as well as collaborates with internal and external resources and sponsoring agencies to maximize productivity of the operations of the RCU. She works with the Director to develop and implement strategic planning; evaluate the work of the RCU; and develop procedures, training, and processes for maintaining quality control. She also serves as the project manager for the Mississippi Vocational Exemplary Teaching Program. Ms. Bock is currently pursuing a doctoral degree in Educational Leadership from Mississippi State University. Prior to coming to the RCU three years ago, she served the Starkville Public Schools as a middle school teacher and librarian. She is a National Board Certified Teacher® in School Library Media.

Marilyn Bowen, Ph.D.

Dr. Bowen has served public education in Mississippi for over fifteen years. As an Online Learning Project Manager at the RCU, she has researched and developed innovative programs in online pedagogy and learning. Dr. Bowen developed and implements a rigorous certification program called C.O.O.L for those desiring to become highly qualified online instructors. She provides oversight for all of the online professional learning opportunities delivered by the RCU. Dr. Bowen earned her Ph.D. in Educational Technology, M.S. in Elementary Education, and B.S. in Elementary

Education. After a rigorous application and interview process, Dr. Bowen was chosen to join an elite group of professional learning specialists as a participant in the National Staff Development Council's Academy XVII.

Leanne Long

As Professional Learning Project Manager and Blackboard® System Administrator at the RCU, Ms. Long has extensive experience in the training and development of educators. She develops, coordinates, presents, and maintains face-to-face and online learning of the Vocational Instructor Preparation (VIP) program for new vocational and technical educators in Mississippi. She also oversees all professional learning activities conducted by the RCU. Ms. Long maintains the Blackboard® system implemented by the RCU for the vocational teachers in the state. She provides her expert knowledge to develop and coordinate curriculum revision for Cooperative Education and Marketing Management programs and has research interests in business education, technology education, distance learning, preservice teacher education, effects of professional learning, and teacher retention. Ms. Long earned a B.S. in Technology Teacher Education and an M.S. in Technology from Mississippi State University. She is a Walden Certified Online Educator.

Bruce Stirewalt, Ph.D.

A contributor to the field of education for over forty years, Dr. Stirewalt served as Director of the RCU from 1998 to 2002. He is currently retired from the Mississippi Public Employees Retirement System and works part-time for the RCU on research endeavors and legislative issues concerning vocational education. He has been

instrumental in the development of the Vocational Instructor Preparation (VIP) program for new vocational teachers. He has authored more than forty publications and has been invited to speak at over fifty professional programs. Prior to working at the RCU, Dr. Stirewalt was Department Head of Technology and Education at Mississippi State University for eighteen years.

APPENDIX D:

REVISED RESEARCHER-CREATED SURVEY

Researcher Created Survey

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Email: robin.parker@rcu.msstate.edu
Address: PO Drawer DX, MsState, MS 39762

Directions: Please complete the following survey. Your responses will remain confidential.

Teacher Name: _____

1 Professional Learning

Directions: Answer the following statements or questions by placing an **X** in the appropriate box OR filling in an appropriate response in the line provided.

1. Indicate the number of face-to-face workshops offered by the MDE or RCU within the past 3 years that you have successfully completed:
   _____
2. Indicate the number of online workshops offered by the MDE or RCU within the past 3 years that you have successfully completed:
   _____
3. Did you attend the 2006 Data-retreat sessions sponsored by the MAC?
   Yes No
4. To what degree did you modify your instruction during the 2006-07 school year based on 2006 MS-CPAS test scores?
   ☐ Not at all ☐ Not much ☐ Somewhat ☐ Often ☐ Completely
5. Did you use the MS-CPAS practice test to prepare your students for the 2007 MS-CPAS test?
   ☐ Not at all ☐ Not much ☐ Somewhat ☐ Often ☐ Completely
6. Have you successfully completed the National Board for Professional Teaching Certification (National Board Certification)?
   Yes No

2 Use of Curriculum and Assessment Resources

Directions: Place and **X** in the appropriate box to indicate how often you use the curriculum and assessment resources listed below.

		Never	Almost Never	Sometimes	Almost Always	Always
1.	I refer to my program area's state curriculum framework when developing lesson plans and activities for my students.					
2.	I implement teaching strategies found my program area's state curriculum framework.					
3.	I implement assessment strategies found in my program area's state curriculum framework.					
4.	I use instructional resources from my program area's B.R.I.D.G.E. website.					
5.	I communicate with colleagues using my program area's B.R.I.D.G.E website.					
6.	I use a Blackboard® course website in my classroom.					
7.	I give assessments using my Blackboard® course website.					
8.	I post assignments in my Blackboard® course website.					
9.	I encourage students to communicate using the discussion board in my Blackboard® course website.					

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Address: PO Drawer DX, MsState, MS 39762

3 Experience

Directions: Answer the following statements or questions by placing an **X** in the appropriate box.

1. Number of years of ***overall*** teaching experience:

   _____

2. Number of years of teaching experience in your current position:

   _____

3. Number of years of occupational experience related to subject being taught (check one):

   _____

4. Indicate how you met the teacher certification requirements for vocational educator licensure:
   - ☐ Alternate route certification prior to 2003
   - ☐ Alternate route certification after 2003 (VIP program)
   - ☐ Traditional route by completing a baccalaureate degree from a teacher education program

5. Indicate your successful completion of the following:
   - ☐ High school diploma
   - ☐ High school equivalency certificate (ex. GED)

6. Did you complete a secondary career and technical program?
   - ☐ Yes
   - ☐ No

   If yes, in what area? _____

7. Did you complete a postsecondary career and technical program?
   - ☐ Yes
   - ☐ No

   If yes, in what area? _____

8. Indicate highest degree held:
   - ☐ Associate's certificate
   - ☐ Associate's degree
   - ☐ Bachelor's degree
   - ☐ Master's degree
   - ☐ Educational Specialist's degree
   - ☐ Doctor's degree
   - ☐ High school diploma
   - ☐ High school equivalency certificate (ex. GED)