

Factors Considered by High School Counselors When Advising Students Regarding Career and Technical Education

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Abstract

Enrollment in career and technical education (CTE), specifically, business and computer-related courses, should be at an all-time high due to the number of postsecondary majors, number of job positions, and the increased use of technology; yet enrollment is less than would be expected. This study sought to determine the factors that influence public high school counselors to advise college-bound and career-bound students to enroll in CTE; and the percentage of college-bound and career-bound students public high school counselors advise to enroll in CTE. A total of 5,572 surveys were distributed via email to high school counselors in twelve southern states; 281 responded (N = 281). Data were analyzed using Wilcoxon Signed-Rank Tests. Most respondents (76.47%) strongly agreed that career-bound students should take CTE courses in high school, but only 46.64% strongly agreed that college-bound students should enroll in CTE.

Keywords: career and technical education (CTE), high school counselors, industry-based certifications (IBCs), advising

High school counselors are empowered to direct students to enroll in courses that will prepare them for occupations that will be imminent in our nation's future workforce. Thornburg (2016) clearly stated: "High school counselors are the key holders in the dissemination of career information for students" (p. 20). Counselors should be readily available with current information about predicted workforce needs and be well-informed about opportunities available in career and technical education (CTE) in order to appropriately direct students down career pathways that match their interests and abilities.

In a study regarding the value of one component of CTE, business education, Railsback and Hite (2008) studied public high schools from the perspective of high school principals, counselors, and boards of education in a Midwestern state. The focus was on counselors because the researchers said counselors "often recommend or do not recommend that certain students enroll in business education"

(p. 152). Their research was one of a descriptive nature, as they chose three groups to study whose perceptions have influence upon course offerings and student scheduling. Railsback and Hite used a questionnaire to survey 341 school principals and 341 counselors at public high schools, as well as 304 elected board of education presidents. Of the 986 surveys mailed, the principals completed 31% of the surveys, the counselors completed 40% of the surveys, and only 19% of surveys mailed to school board presidents were completed. Findings of the study concluded that all three groups perceived skills learned in business education courses to be important and vital for students to possess; however, the counselors had the lowest level of support. The researchers recommended that business education teachers work closely with counselors to ensure students are encouraged to enroll in business courses which offer practical life skills.

High school counselors are in a position to influence students to participate in CTE, which may lead to the

students becoming career-ready, as reported by the Association for Career and Technical Education (ACTE Online, 2018) in a fact sheet publication. This fact sheet stated that three of the top skills needed by employers in today's workforce are professionalism/work ethic, teamwork/collaboration, and oral communication skills. Students who participated in the research indicated that CTE helped them learn how to work in teams and collaborate with peers because of the real-world examples and activities. Professionalism/work ethic is taught in CTE student organizations, such as Future Business Leaders of America (FBLA) and Distributive Education Clubs of America (DECA), as students participate in competitive events that require them to problem-solve, research and complete projects, and dress professionally. Oral communication skills are taught in business courses as students make presentations and communicate within groups, thereby helping students learn vital employability skills.

ACTE (n.d.) reported that "credentials are also valuable to employers, allowing them to determine the skill or education level of job applicants without having to perform an assessment for each one" (para. 1). Students who participate in CTE can earn industry-based credentials (IBCs), such as those offered by Microsoft, Adobe, Intuit, and others. Earning IBCs in business and information technology (IT) products is highly regarded in the workplace. Certiport (n.d.) reported that "men with certificates in IT earned more than 72% of men with an associate degree and women with IT-related certificates earned more than 75% of those with an associate degree" (p. 8). IBCs are also noticeable in graduation rates of students. The graduation rate in Florida for students who earn three or more hours in a certification program is 95.99%; over 81% of those students are employed or enrolled in post-secondary education after their high school graduation.

ACTE (2018) found that "financial services represents almost \$1.5 trillion of the United States Gross Domestic Product, employs more than six million people, and is experiencing a talent shortage" (p. 1). CTE is the answer to this talent shortage as secondary business courses are beneficial to all students because they can help guide them to futures in the financial industry later in life. Students who earn less than a bachelor's degree in this discipline can earn more than the national median wage, as ACTE reported the average salary in 2017 was \$67,000. ACTE noted projections of nearly 800,000 new jobs will be available in the financial sector through the year 2026.

Strong proponents of CTE are business leaders, as indicated in a study conducted by the Missouri Department of Elementary and Secondary Education (Russell, 2019). This study revealed that "over 85 percent of business leaders believed that CTE classes teach students transferable skills that will serve them well in this economy" (2019, p. 2) and "more than 90 percent of business leaders agree that local employers should partner with schools to provide students with real-world education and training experiences" (p. 2). Business and industry partnered with schools to provide opportunities for students that eventually lead to high-skill, high-wage, in-demand employment. Business coursework on the secondary level prepares students for similar business courses they will take at the local community college or university after high school graduation. Many students have little or no knowledge of business courses being offered at the local high school and yet they move on to the college campus and major in accounting, business management, finance, and other business-related disciplines.

Since CTE has much to offer students that will improve their future employment opportunities, it is puzzling as to why many secondary level CTE courses do not remain on the master schedule due to dwindling numbers. Enrollment in CTE courses, especially business, technology- and computer-related courses, should be at an all-time high due to the number of business majors recorded on the postsecondary level and the increased use of technology worldwide. Over 380,000 of the 2.0 million bachelor's degrees conferred in the years 2016–17 were in the field of business, which was the largest concentration of any discipline (National Center for Education Statistics, [NCES], 2019). A similar report by The National Association of Colleges and Employers (NACE, 2018) stated that the top majors for 2018 were finance, accounting, and business administration/management, followed by computer science. There are innumerable reasons for high school students to participate in CTE courses, specifically business courses, yet enrollment is less than the job demand. According to the NCES (2013), business, finance, and marketing credits earned dropped drastically from 1.35 credits earned in 1992 to 0.84 credits earned in 2004 to 0.56 in 2013. Unfortunately, these were the most recent statistics available.

Spaulding and Steffen (2011) revealed that high school counselors have stereotypical perceptions of CTE and careers that are available in CTE, feel pressured with the lack of resources and training where CTE is concerned, and would appreciate professional development in the form of seminars and workshops

to learn more about the current options available in CTE. If perceptions of CTE are negative or they are not properly informed about the benefits of CTE, additional training on the benefits and advantages of today's CTE for all students would be indispensable to public high school counselors in overcoming yesteryear's vocational education stigma.

The post positivist worldview, sometimes referred to as the scientific method, according to Creswell (2014) is a "deterministic philosophy in which causes determine effects or outcomes" (p. 7). Ryan (2006) stated "Research in this mode requires an ability to see the whole picture" (p. 18). To look at the whole picture of why high school counselors advise college-bound and career-bound students to enroll or not enroll in CTE coursework, the factors they might consider were investigated. Reality about the dwindling numbers in CTE, as is typically disclosed by post-positivist research (Ryan, 2006), should become evident in studying the overall perceptions of CTE held by high school counselors and why their perceptions could be a possible cause of low secondary CTE enrollment.

Purpose of the Study and Research Questions

The purpose of this quantitative study was to: (a) determine the factors public high school counselors consider important when advising college-bound students to enroll in CTE courses and career-bound students to enroll in CTE courses, (b) the percentage of college-bound students and career-bound students public high school counselors advise to enroll in CTE, and (c) public high school counselors' overall perceptions of CTE.

The following research questions were investigated:

1. What factors do public high school counselors consider important when advising college-bound students and career-bound students regarding career and technical education?
2. What percentage of college-bound students and career-bound students do public high school counselors advise to enroll in career and technical education?
3. What are the overall perceptions public high school counselors have regarding career and technical education?

Review of Literature

Counseling and Advisement

In a study by Stipanovic et al. (2012) concerning the history and refunding efforts of CTE, the researchers discussed programs of study (POS) within CTE. They noted that the U. S. Department of Education developed a framework for programs of study in CTE that included 10 components. One of those components is described as "guidance counseling and academic advisement: Guidance counseling and academic advisement help students to make informed decisions about which POS to pursue" (p. 91). From that same study, which highlighted numerous other research efforts, the authors confirmed the need for increased counseling for students to determine the appropriate courses to schedule that match their chosen careers. These expanded efforts presented options on how counseling and services are provided in high schools that offer CTE programs of study. Course advising and career counseling on the secondary level is an extremely important and vital aspect of a counselor's responsibilities.

Loera et al. (2013) focused on motivation and academic engagement in CTE by studying 267 urban youth in the 11th and 12th grades. The study used a path model in probing into the associations between students and such factors as adults' impact on their decision to enroll in college, their aspirations to attend college, and the quality of their CTE program of study. A social cognitive concept was utilized in this study to "examine how CTE contextual variables influence students' educational and career aspirations" (p. 174). Questionnaires were used to assess the students' perceptions of teachers, parents, and other educators, such as counselors, in determining their satisfaction with advising and guiding them in their college and career choices. Loera et al. determined, "If teachers develop and expose students to a career-related curricula program, those students may be more likely to continue in their education and career preparation after high school and feel better prepared for the future" (p. 183). The researchers recommended further study on the satisfaction of career and educational counseling by school personnel, such as teachers and counselors.

Smith (2015) conducted a qualitative inquiry directed at African American students and their perceptions of CTE. The study further revealed that students perceived their counselors to be key in guiding students in course selection and college and career

counseling. The researcher suggested that “the guidance counselors are perceived by students to be very influential and important in helping them choose their career cluster and courses” (p. 69). She also referred to counselors as the “conduit that gave them access to their classes” (p. 78).

Perceptions and Support of CTE

A study by Pierce (2017) focused on counselors’ valuation of CTE in Mississippi and revealed that counselors believe they did not have time resources available to focus on career planning; therefore, their focus is college planning. Thornburg’s (2016) study revealed that counselors conveyed they spend “less than five hours per year providing career counseling to each student” (p. 106).

Even though it seems that counselors do not appear to be spending enough time advising students in course selections that will prepare them for their future careers, counselors, in general, noted having positive beliefs toward CTE. Pierce (2017) indicated that Mississippi middle and high school counselors place value on CTE and its’ offerings. Counselors surveyed in the study were reported as strongly agreeing that CTE greatly assists students in their post high school goals, offers students a highly competitive advantage in regard to employability, allows students more exposure to career options, and benefits participating students. Counselors also reported that they would strongly encourage students to enroll in CTE programs and expressed an understanding that CTE programs are for both college-bound and career-bound students. Along these same lines, Dougherty et al. (2019) suggested “CTE course work may be beneficial for all postsecondary aspirants” (p. 442). They determined that CTE coursework in high school created a positive link for those students who entered college immediately upon graduation, not just those students who went directly into the workforce.

Although counselors claim to support CTE, the review of literature suggests there is a disconnect when it comes to advising students to enroll in CTE on the secondary level. In searching for ideas, circumstances, or experiences that influence counselors’ perceptions of CTE, it appears that many counselors are not true advocates for CTE, even though they allege to be supportive. Huss and Banks (2001) wrote that “school counselors have a great deal of influence with course selection and therefore are key participants in CTE, but in some cases the school counselor is not an advocate for CTE” (p. 3).

Handy and Braley (2012, 2013) sought to identify and categorize the perceptions of CTE as held by administrators, counselors, and teachers of CTE and academia in their study using control group actions’ perceptual control theory (PCT). In their qualitative study comprised of 110 educators that utilized surveys and face-to-face interviews, Handy and Braley (2012) discovered that “a counselor who believes that hands-on experience is important may encourage students to participate in experiential learning courses or internship opportunities” (p. 18). Using a grounded theory approach, the researchers determined in their study that there are those providing advice and direction to students who view “CTE as unhelpful for students bound for post-secondary education” (2012, p. 17). In another study by Handy and Braley (2013) where they investigated the perceptions of administrators, counselors, CTE teachers, and academic core teachers, the researchers discovered three themes emerging that included an individualized approach to learning, the importance of blending CTE and academic content, and the obstacles to integrating the two areas. High school counselors must be informed, concerned, and unbiased when it comes to giving students direction about scheduling courses, and they must be willing and able to share the beneficial facts about CTE. Another study, which focused on factors that promote motivation and academic engagement in CTE gave indication of students making wiser and better educational and career choices when their role models (i.e., teachers, counselors, and parents) encouraged and supported their choices (Loera et al., 2013). Hence, if counselors are not promoting CTE to their students, and not encouraging them to pursue CTE options, students will not likely follow these pathways when choosing high school coursework. Advance CTE (2017) found that 84% of prospective high school students trust school counselors for information regarding CTE, and 82% of the parents of prospective high school students trust school counselors to provide factual and helpful information about CTE.

Brown (2003) considered the image of CTE in a study that offered strategies to improve perceptions of CTE. One of the main ideas behind the strategies presented was to address the misconceptions that people have that all students should attend college to seek four-year degrees. In reference to business, education, and government leaders, Cohen and Besharow (2002) asserted, “These leaders believe that trade and technical schools should offer more appealing options for high school graduates” (p. 1). CTE now offers better options for high school students and graduates, and Brown suggested that counselors

be reeducated on the options (2003). She also noted, "Many guidance counselors overlook CTE and focus only on the four-year college option" (p. 2).

In Thornburg's (2016) study of 286 school districts he stated, "I have found that they rely on CTE programs as a last option for the better students and as the first option for students who struggle academically" (pp. 12-13). He found that the knowledge level of counselors' is extremely important and is influential in how they advise students with their course scheduling in high school. This study implied that as high school counselors' perceptions of CTE change and their knowledge of CTE and its benefits increase, social change should take place.

CTE is the connecting force between academics and America's workforce. Finlayson's (2009) study concerning middle and high school counselors' perceptions of CTE affirmed that "students who see a direct link between school and the future are more definite in their career and postsecondary goals". Summers (2013) asserted that "counselors may need to remain, or become, aware of what occupational needs are currently exhibited in our economy and how to work to eliminate these needs" (p. 7).

Research Design and Methodology

A correlational, quantitative design was chosen for this study because the relationship between two or more variables was under investigation (Creswell, 2014). The relationship between the factors that influence public high school counselors to advise college-bound students to enroll in CTE along with the factors that influence public high school counselors to advise career-bound students to enroll in CTE, and their perceptions of CTE were the variables investigated. One strength of a correlational design "is that it provides more information about the sample's scores on the measured variable than is typically possible with group comparison research" (Gall, Gall, & Borg, 2010, pp. 265-266). Another strength of a correlational design is that the independent variables cannot be manipulated (Gall, et al., 2010); which in the case of this study are the factors that influence public high school counselors to advise college-bound students to enroll in CTE along with the factors that influence public high school counselors to advise career-bound students to enroll in CTE. The dependent variable of this study is the perceptions of CTE held by high school counselors.

Data Collection

The survey instrument used in this study, Assessment of High School Counselors' Perceptions of CTE, is one that was designed by the researchers for this inquiry. Permission to conduct this study was obtained from the Institutional Review Board (IRB) at Auburn University. An information letter was provided via email to the participants that included a link to the survey instrument. The email explained the purpose of the survey along with the study's necessity and importance, and the population that had been chosen to participate in the inquiry. The survey instrument was well-organized with specific instructions as to how to respond and submit answers. Data were collected for approximately one month with three reminders being sent intermittently throughout the month. A follow-up email was sent approximately one month later to thank those who had responded and to remind potential participants who had not responded to complete the survey (Dillman, Smyth, & Christian, 2014).

The online questionnaire was distributed via Qualtrics to 5,572 high school counselors employed at public high schools in the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. These states were chosen because they are the twelve southern states that make up the Southern Business Education Association. Mississippi and Alabama distributed the survey to approximately 1,900 public high school counselors in their states. These states would not allow access to their counselor databases due to privacy concerns. Many states have implemented privacy laws to protect personally identifiable information (PII) of teachers, students, and other educational staff from falling into the hands of those with fraudulent or illegal aspirations. State departments of education in Louisiana and Arkansas provided their states' counselor databases of roughly 1,162 counselors for survey purposes. The remaining email addresses for approximately 2,510 counselors were gathered by searching district and school websites in the states of Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. A total of 281 ($n = 281$) participants responded to the survey, which translates into a five percent response rate. The data collected were used to determine if a correlation exists between the independent and dependent variables.

One section of the survey instrument measured factors that influenced advisement of students. Respondents were instructed to use a 5-point Likert scale to indicate the level of importance of each factor listed: (a) Extremely important, (b) Very important, (c) Moderately important, (d) Slightly important, or (e) Not at all important. Counselors utilized this scale separately in consideration for students who indicated they were college-bound after high school and for students who indicated they were career-bound after high school. The items being measured for all students were (1) GPA, (2) grade in core academic courses, (3) career plans, (4) college plans, (5) attendance, (6) discipline record, (7) gender, (8) participation in extracurricular activities, (9) participation in sports, (10) socio-economic status, (11) current grade level, (12) popularity, (13) class size of course, (14) teacher recommendation, (15) student’s desire to take a course, and (16) parental expectations. Respondents were also instructed to indicate other factors not listed that they believed important when advising students, college-bound and career-bound, to enroll in CTE coursework.

Another section of the survey instrument consisted of two questions concerning the percentage of college-bound students and career-bound students the respondents believe they advise to enroll in CTE courses per academic year. A sliding scale representing 0 – 100% was provided for the respondents to answer.

Statistical analysis of the data included the use of the Statistical Package for Social Sciences (SPSS). A non-parametric statistical hypothesis test, the Wilcoxon Signed-Ranks Test, was used to compare the factors in research question 1, while descriptive statistics were analyzed for research questions 2 and 3.

Reliability and Validity

To evaluate content validity and reliability, a panel of expert judges was chosen to evaluate the survey instrument. The panel consisted of university faculty members who are accomplished researchers known for their expertise in descriptive survey research design, survey instruments, and data collection. The panel was asked to assist in developing a survey that accurately displayed the purpose and scope of the study by thorough questioning that was clear and understandable, organized in content, and would properly uncover appropriate findings.

Reliability was assessed using Cronbach’s alpha which is “the most commonly used internal consistency reliability estimate used by researchers” (Ross & Shannon, 2011, p. 239). The resulting Cronbach’s Alpha for survey items questioning counselors’ perceptions was .929, for survey items related to college-bound students was .865, and for survey items related to career-bound students was .832. All scores indicated the survey instrument to be internally consistent, according to Bas (2013), who noted that a Cronbach’s Alpha score should be at least .70.

Threats to internal validity could include the selection process of participants for the study. Externally, the threat of “interaction of history and treatment” (Creswell J. W., 2014, p. 176) could come into play with this study; hence, the study may need to be repeated in the future.

Results and Discussion

The number of participants who responded to the survey was 281 (n = 281). Table 1 details the number of respondents from each of the twelve states included in the study. Out of the 281 participants, 44 respondents did not indicate the state in which they reside. Of the 281 participants, 80.78% (n = 227) indicated they were female, 12.45% (n = 35) indicated they were male, and 6.76% (n =19) did not respond to being female or male.

Table 1

Number of Counselors by State		
State	n	%
Alabama	16	5.70
Arkansas	44	15.66
Florida	21	7.47
Georgia	17	6.05
Kentucky	4	1.42
Louisiana	45	16.01
Mississippi	9	3.20
North Carolina	63	22.42
South Carolina	3	1.07
Tennessee	4	1.42
Virginia	8	2.85
West Virginia	3	1.07
State not indicated	44	15.66
Total	281	

Results of Research Question 1

The first research question asked, what factors do public high school counselors consider important when advising college-bound students and career-bound students regarding career and technical education?

Factors Considered

The participants in this study were asked to indicate how important they considered certain factors when advising college-bound and career-bound students regarding CTE. These factors measured for all students included (1) GPA, (2) grade in core academic courses, (3) career plans, (4) college plans, (5) attendance, (6) discipline record, (7) gender, (8) participation in extracurricular activities, (9) participation in sports, (10) socio-economic status, (11) current grade level, (12) popularity, (13) class size of course, (14) teacher recommendation, (15) student’s desire to take a course, and (16) parental expectations. Respondents were instructed to use a 5-point Likert scale to indicate the level of importance of each factor listed: (a) Extremely important, (b) Very important, (c) Moderately important, (d) Slightly important, or (e) Not at all important. According to Ross & Shannon (2011), lower values indicate “a more positive response” (p. 103).

To analyze the factors that influence public high school counselors to advise college-bound students to enroll in CTE and the factors that influence public

high school counselors to advise career-bound students to enroll in CTE, a non-parametric statistical hypothesis test, the Wilcoxon Signed-Ranks Test, was used to compare the factors. Statistical significance was noted in seven of the 16 factors presented to the participants. The participants were also allowed to submit other factors they deemed significant when advising students, college-bound and career-bound, regarding CTE.

The findings suggest that high school counselors consider students’ GPA for career-bound students statistically significant more important than for college-bound students, when advising students to enroll in CTE, $Z = -5.130$, $p < .001$, as shown in Table 2. High school counselors considered students’ grades in core academic courses for career-bound students statistically significantly more important than college-bound students’ grades in core academic courses, as shown in the results, $Z = 5.090$, $p < .001$. As indicated in the results of the Wilcoxon-Signed Ranks Test, $Z = 4.370$, $p < .001$, counselors considered students’ career plans for career-bound students statistically significantly more important than college-bound students’ career plans, even though the medians are equal. The Wilcoxon-Signed Ranks Test indicated that counselors consider students’ college plans for college-bound students statistically significantly more important than career-bound students’ college plans, as noted, $Z = 4.931$, $p < .001$.

Table 2

Comparison of Factors that Influence Counselors in Advising College-Bound and Career-Bound Students				
Factor	College-Bound Mdn	Career-Bound Mdn	Z	p-value
Student’s GPA	2.00	3.00	-5.130b	<.001
Student’s grade in core academic courses	2.00	3.00	-5.090b	<.001
Student’s career plans	1.00	1.00	-4.370c	<.001
Student’s college plans	1.00	2.00	-4.931b	<.001
Student’s attendance	2.00	2.00	-1.439c	0.150
Student’s discipline record	2.00	2.00	-0.721c	0.471
Student’s gender	5.00	5.00	-2.565c	0.010
Student’s participation in extracurricular activities	4.00	3.00	-5.511b	<.001
Student’s participation in sports	4.00	4.00	-4.292b	<.001
Student’s socio-economic status	5.00	5.00	-0.167c	0.867
Student’s current grade (9, 10, 11, 12)	3.00	3.00	-0.751b	0.453
Student’s popularity	5.00	5.00	-0.372c	0.710
Class size of course	3.00	3.00	-1.950c	0.051
Teacher recommendation	3.00	3.00	-0.625b	0.532
Student’s desire to take a course	1.00	1.00	-0.892c	0.373
Parental expectations	2.00	2.00	-1.127b	0.260
Other (Please specify)	3.00	2.00	-1.000c	0.317

a Wilcoxon Signed Ranks Test b Based on negative ranks c Based on positive ranks

As indicated in the results of the Wilcoxon-Signed Ranks Test, $Z = 2.565$, $p = .010$, counselors consider the gender of career-bound students statistically significantly more important than the gender of college-bound students, even though the medians are equal. The results of the Wilcoxon-Signed Ranks Test, $Z = 5.511$, $p < .001$, also indicated counselors consider students' participation in extracurricular activities for college-bound students statistically significantly more important than career-bound students' participation in extracurricular activities. When considering students' participation in sports, a Wilcoxon Signed-Ranks Test indicated that counselors consider career-bound students' participation in sports and college-bound students' participation in sports equally when advising students to enroll in CTE, as shown in the results, $Z = 4.292$, $p < .001$. However, there is statistical significance for this factor. When considering other factors as noted by respondents (i.e., known quality of instruction in CTE courses, student's immigration status, whether the course provides hands-on opportunities, teacher of the course, students' desire to work until they achieve something), a Wilcoxon Signed-Ranks Test indicated that counselors consider career-bound students and college-bound students equally when advising students to enroll in CTE, as shown in the results, $Z = 1.000$, $p = .317$, indicating there is no statistical significance for this factor. Table 2 summarizes the results of high school counselors' consideration of all factors presented in the study ranked from most important to least important, when advising college-bound and career-bound students regarding CTE.

Results of Research Question 2

The second research question asked, what percentage of college-bound students and career-bound students do public high school counselors advise to enroll in career and technical education?

Advising Students to Enroll in CTE

Using a sliding scale representing 0 – 100%, participants were asked to signify what percentage of students per academic year who had indicated they were career-bound after high school would they advise to enroll in CTE coursework. Participants revealed they would advise 75.49% of these students who indicated they were career-bound to enroll in CTE. Participants were also asked to signify what percentage of students per academic year who had indicated they were college-bound after high school they would advise to enroll in CTE. They disclosed

they would advise 61.11% of the students who indicated they were college-bound after high school to enroll in CTE. To analyze if there was a statistically significant difference in the percentage of college-bound students that high school counselors advise to enroll in CTE in comparison to the percentage of career-bound students that high school counselors advise to enroll in CTE, a Wilcoxon Signed-Ranks Test was used. As indicated in the results of this test, $Z = -6.736$, $p < .001$, a statistically significant difference exists in the percentage of career-bound students and college-bound students whom counselors advise to enroll in CTE.

Results of Research Question 3

The third research question asked, what are the overall perceptions public high school counselors have regarding career and technical education?

Perceptions

The participants in this study were asked to indicate their level of agreement with the following statements presented in Tables 3 and 4 (ACTE Online, 2018) that show the relevance and importance of CTE on the secondary and postsecondary levels, business and industry, and the United States economy. The findings presented in Tables 3 and 4 are representative of the overall perceptions that public high school counselors believe about CTE. As the findings in the tables suggest, high school counselors perceive CTE as being more appropriate for career-bound students than college-bound students. A 5-point Likert scale was provided in the survey for these statements to determine whether the counselors agreed or disagreed with the statements. The respondents were instructed to rate whether they (a) Strongly agreed, (b) Somewhat agreed, (c) Neither agreed nor disagreed, (d) Somewhat disagreed, or (e) Strongly disagreed.

Limitations and Recommendations for Future Research

There are a few limitations and recommendations for future research. One limitation may include "sampling errors due to an underrepresentation of small schools and an over-representation of large schools in the sample" (Thornburg, 2016, p. 17) based on the surveys that were completed. Public high school counselors may have been unwilling to participate in the study "due to the perceptions that the study is questioning the motivation and knowledge level" (p. 17) they hold concerning CTE. Several state departments of education were not willing to share

Table 3

Percentage of High School Counselors Who Strongly Agree with Statements Related to CTE and College-Bound Students	
Statement	%
CTE provides opportunities for students to earn college credit while still in high school (dual enrollment).	53.59
College-bound students should take CTE courses.	46.64
CTE prepares students for college	30.67
CTE encourages students to attend college.	28.45

Table 4

Percentage of High School Counselors Who Strongly Agree with Statements Related to CTE and Career-Bound Students	
Statement	%
Career-bound students should take CTE courses.	76.47
CTE provides learning experiences that are useful in today’s workplace.	74.26
CTE prepares students for careers.	70.59
CTE fulfills employer needs in high-skill career areas.	51.68

email addresses for counselors in their state because they stated that would be violating a privacy issue or they did not have that specific database available to share. The study may not be representative of public high school counselors’ perceptions of CTE in other states because only southern states were studied. Delimitations to this study could have included the size of the sample, in the event not a large enough sample responded to the survey.

This study should be repeated in other states so that comparisons can be made to the twelve southern states that were investigated. Consideration for up-to-date, rigorous, and more in-depth professional development concerning CTE is highly recommended for public high school counselors on a regular basis throughout the twelve states that were surveyed so that they are equipped to present the benefits and advantages to all students, college-bound and career-bound, enabling them to make appropriate decisions concerning their future post-secondary and/or career plans. A follow-up study should be conducted in a reasonable amount of time to determine if current, rigorous, and more in-depth professional development has been implemented and applied.

Findings

It is not surprising the majority of the participant in this study were female (80.78%). The state

with the largest response rate was North Carolina (22.42%), while the states with the lowest response rate were South Carolina and Virginia (1.07% each). The study produced interesting results when considering the factors high school guidance counselors deem important when advising career-bound and college-bound students regarding CTE. Statistical significance was noted in seven of the 16 factors presented to the participants. The participants were also allowed to submit other factors they deemed significant when advising students, college-bound and career-bound, regarding CTE.

The findings suggest that high school counselors consider students’ GPA for career-bound students statistically significant more important than for college-bound students, when advising students to enroll in CTE, $Z = -5.130, p < .001$, as shown in Table 2. High school counselors considered students’ grades in core academic courses for career-bound students statistically significantly more important than college-bound students’ grades in core academic courses, as shown in the results, $Z = 5.090, p < .001$. As indicated in the results of the Wilcoxon-Signed Ranks Test, $Z = 4.370, p < .001$, counselors considered students’ career plans for career-bound students statistically significantly more important than college-bound students’ career plans, even though the medians are equal. The Wilcoxon-Signed Ranks Test indicated that counselors consider students’ college plans

for college-bound students statistically significantly more important than career-bound students' college plans, as noted, $Z = 4.931$, $p < .001$.

As indicated in the results of the Wilcoxon-Signed Ranks Test, $Z = 2.565$, $p = .010$, counselors consider the gender of career-bound students statistically significantly more important than the gender of college-bound students, even though the medians are equal. As indicated in the results of the Wilcoxon-Signed Ranks Test, $Z = 5.511$, $p < .001$, counselors consider students' participation in extracurricular activities for college-bound students statistically significantly more important than career-bound students' participation in extracurricular activities. When considering students' participation in sports, a Wilcoxon Signed-Ranks Test indicated that counselors consider career-bound students' participation in sports and college-bound students' participation in sports equally when advising students to enroll in CTE, as shown in the results, $Z = 4.292$, $p < .001$. However, there is statistical significance for this factor.

When asked to indicate the percentage of students who indicated they were career-bound after high school, participants revealed they would advise 75.49% of the students who indicated they were career-bound to enroll in CTE. Participants were also asked to signify what percentage of students per academic year who had indicated they were college-bound after high school they would advise to enroll in CTE. They disclosed they would advise 61.11% of the students who indicated they were college-bound after high school to enroll in CTE. To analyze if there was a statistically significant difference in the percentage of college-bound students that high school counselors advise to enroll in CTE in comparison to the percentage of career-bound students that high school counselors advise to enroll in CTE, a Wilcoxon Signed-Ranks Test was used. As indicated in the results of this test, $Z = -6.736$, $p < .001$, a statistically significant difference exists in the percentage of career-bound students and college-bound students whom counselors advise to enroll in CTE.

The participants in this study were asked to indicate their level of agreement with the several statements presented in Tables 2 and 3 (ACTE Online, 2018) that show the relevance and importance of CTE on the secondary and postsecondary levels, business and industry, and the United States economy. The findings presented in the tables are representative of the overall perceptions that public high school

counselors believe about CTE. As the findings in the tables suggest, high school counselors perceive CTE as being more appropriate for career-bound students than college-bound students.

Conclusion

The following conclusions are based on the findings of the study. Consideration for up-to-date, rigorous, and more in-depth professional development concerning CTE is highly recommended for public high school counselors on a regular basis throughout the twelve states that were surveyed so that they are equipped to present the benefits and advantages to all students, college-bound and career-bound, enabling them to make appropriate decisions concerning their future post-secondary and/or career plans. The study should be repeated in other states. A follow-up study should be conducted in a reasonable amount of time to determine if current, rigorous, and more in-depth professional development has been implemented and applied.

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