

No Child Left Behind: Implications for Career and Technical Education

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Abstract

High school principals and career and technical education (CTE) teachers throughout Illinois were subjects of this study which described principals' and CTE teachers' perceptions of the impact the No Child Left Behind Act of 2001 has had on high school CTE programs. Findings indicated principals and teachers collectively disagreed with "No Child Left Behind has had a positive impact on the image of CTE at your school." Both groups also agreed CTE courses can help schools meet the goals of "all students will reach high standards, at a minimum of attaining proficiency or better in reading and mathematics" and "all students will graduate from high school." However, a statistically significant difference between the groups was found with "No Child Left Behind has had a positive impact on CTE enrollment at your school." Findings indicated while the principals agree, the teachers conversely disagreed with the statement.

Background of the Study

In an effort to help children receive a quality education and learn the basic skills needed to be successful, President George W. Bush signed into law the No Child Left Behind (NCLB) Act of 2001. This legislation requires states to set clear standards for what every child should learn and holds schools accountable for student progress by requiring annual testing of students' abilities in the areas of language arts, reading, and math. The legislation's four goals are: increased accountability for results from states, school districts, and schools; more flexibility for states and local educational agencies in how federal education dollars are used; proven teaching methods; and more choices for parents and students attending low-performing schools (U.S. Dept. of Education, 2004). The focus of this legislation is undeniably on core academic subjects, which the legislation identifies as English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography (U.S. Dept of Education, 2004).

Need for the Study

According to Daggett (n.d.), as states, school districts, and schools come to grips with the NCLB requirement of all students achieving proficiency in the outlined academic requirements, career and technical education (CTE) programs will be at risk. CTE will continue to lose student enrollment unless CTE leaders can clearly show these programs: a) contribute to academic success of students as measured by state academic tests and b) serve as a motivation for students to stay in school and help students perform better in academic courses. In addition, Secretary of Education Margaret Spellings stated President Bush has proposed converting Perkins and other support programs into block grants for states to choose their own educational fixes. As long as states get results, says Spellings, “we’re not going to prescribe particular programs or strategies like vocational education” (Thornburgh, 2006, p. 38).

There is a unified concern among CTE constituents that based on the fact that no area of CTE (agriculture; business, marketing, and computer; family and consumer sciences; health occupations; or technology – trade and industry education) is mentioned in the legislation, schools may utilize funding normally set aside for CTE programs to improve students’ performance in areas directly mentioned in the legislation in order to meet accountability requirements. One strategy schools are using to help meet the goals in improving students’ abilities in reading/language arts, English, and mathematics is to devote more instructional time to these subjects (Center on Education Policy, 2005). For example, the Illinois State Board of Education’s Web site (n.d.) states that school districts will need to change the curriculum to ensure courses are available for students to meet new graduation requirements. For students entering high school as ninth graders in the 2007-2008 school year, requirements include one additional year of mathematics, two years of writing-intensive courses, and one additional year of science. As a result of these additional requirements, CTE courses may be squeezed out of the curriculum.

Bartik and Hollenbeck (2006), senior economists with the W.E. Upjohn Institute for Employment Research, presented testimony to the Michigan Senate Education Committee addressing the issue of increased graduation requirements in Michigan as a result of the NCLB legislation. They testified there are potential downside risks attributed to increasing high school graduation requirements. The four unintended consequences were: a) increased likelihood of student drop-out rates; b) “watering down” of the curriculum for all; c) some excellent classes, such as in the area of career and technical education, may get crowded out of the curriculum; and d) graduation requirements may stifle curricular innovation. Bartik and Hollenbeck contend

the one-size-fits-all requirement does not meet the diverse needs of our economy for many types of high-skilled workers and does not meet the diverse interests of students.

CTE programs are a vital and necessary component of the high school curriculum. Evaluations of CTE programs in schools and districts show CTE programs contribute to increased school attendance, reduced high school dropout rates, higher grades, and increased entry into postsecondary education (Brand, 2003). Yet there is no research revealing if high school principals and CTE teachers believe CTE courses can contribute to the NCLB Act's objectives. Districts are making decisions regarding where to spend money based on the NCLB requirements for students to succeed in the areas of language arts, reading, and math since students take standardized tests in these areas that result in school ratings. Career and technical education programs and teachers may be impacted as a result; however, the level of impact is to be determined. The results of this research will offer some insight into the perceptions of high school principals and CTE teachers related to the affects of NCLB on CTE programs and CTE programs' ability to help achieve schools' and state goals regarding NCLB.

Objectives

The objectives of the study were to describe the perceptions of secondary principals and high school CTE teachers on how the NCLB Act has impacted CTE programs. Specific questions were: a) What are the perceptions of high school principals related to the benefits of CTE in helping high schools achieve the goals of NCLB? b) What are the perceptions of high school CTE teachers related to the benefits of CTE in helping high schools achieve the goals of NCLB? and c) Was there a difference in the perceptions of high school principals and CTE teachers related to the benefits of CTE in helping high schools achieve the goals of NCLB?

Review of Literature

The NCLB Act requires each state to meet specific goals to ensure every child is meeting established standards. The goals established by the State of Illinois to meet NCLB guidelines include: a) all students will reach high standards, at a minimum attaining proficiency or better in reading and mathematics by 2013-2014; and b) all students will graduate from high school. The literature review focuses on the Act and the ability of CTE to contribute to states meeting the goals of the legislation. Research focused on principals' perceptions of CTE's ability to contribute to meeting the legislation's goals is also presented.

No Child Left Behind Legislation

President George W. Bush signed the No Child Left Behind (NCLB) Act of 2001 into law on January 8, 2002. The NCLB Act amended the Elementary and Secondary Education Act of 1956 and made significant changes in the federal programs. It has been referred to as “the most noteworthy of recent congressional attempts to improve student achievement and otherwise reform elementary and secondary educational programs in the United States” (Simpson, LaCava, & Graner, 2004, p. 67). The ultimate goal of the legislation is to ensure all children have an opportunity to obtain a high-quality education and reach proficiency on state academic achievement standards, which is demonstrated through state academic assessments. Students’ performance on these assessments results in strong rewards or punishments for schools (Simpson, et al., 2004).

The legislation is based on the principles of stronger accountability for results in students’ achievements in the areas of math, language arts, and reading; increased flexibility and local control in how federal funds are spent; expanded options for parents of children who attend low-performing schools; and an emphasis on teaching methods scientifically proven to increase student achievement (U.S. Dept. of Education, 2004).

The accountability goal requires every student to meet state-identified standards by the conclusion of the 2013-2014 school year. Each state established benchmarks to measure school and school district progress in meeting this goal and established adequate yearly progress (AYP) standards that every student and school is expected to meet. These standards provide an objective way for those in and outside schools to identify the areas of strength and weakness within each school and school district. When results of standardized tests are received, schools’ and school districts’ performance are compared to the states’ AYP standards to determine if goals have been met. If the schools and school districts have achieved AYP goals, they may receive public recognition and are eligible to receive rewards. However, schools that do not make adequate progress must provide supplemental services, such as free tutoring, and take corrective actions (U.S. Dept. of Education, 2004). If schools and school districts failed to meet AYP goals for two continuous years, they are labeled “in need of improvement” and may be given assistance in improving their performance and subjected to corrective and disciplinary measures (Simpson, et al., 2004).

With increased accountability comes more control in how federal funds are spent. School districts can transfer up to 50% of federal formula grant funds they receive under the Improving Teacher Quality State Grants, Educational Technology, Innovative Programs, and Safe and Drug-Free Schools programs to any one of these programs or to the Title I program. Educators, parents, and community leaders determine how to use

funds to find solutions to local needs (Simpson, et al., 2004). The legislation makes it possible for schools to address particular areas of weakness with more federal education dollars; districts may use funds for specific needs, such as hiring new teachers, increasing teacher pay, and improving teacher professional development (U.S. Dept. of Education, 2004). Decisions regarding which programs to place more dollars in are now made at the local level rather than the federal.

Accountability also requires progress in meeting AYP goals be shared with the public through annual state and school report cards. If any school fails to meet state standards for at least two consecutive years, parents may transfer children to a better-performing public school within the district (Simpson, et al., 2004). Furthermore, students from low-income families in schools that fail to meet state standards for at least three years are eligible to receive supplemental educational services, including tutoring, after-school services, and summer school (U.S. Dept. of Education, 2004).

The final focus of NCLB is on the identification and implementation of educational practices supported by scientific research. Educational practices must be determined effective through scientifically-based research. These practices must meet rigorous standards and yield positive results (Simpson, et al., 2004).

CTE's Ability to Contribute to Meeting Academic Goals

Schools are expecting all teachers to help students strengthen their basic skills in order to increase test scores required for NCLB's accountability assessment. Teaching methods traditionally used in CTE courses—practical applications, purposeful and contextualized lessons, and an interdisciplinary focus—are effective for strengthening basic skills (Glenn, 2005).

Current theory and research on teaching and learning is supportive of practices identified with CTE, especially those related to the contextualization of learning (Lynch, 2000). Developments in research on learning and pedagogy in the early 1980s emphasized the effectiveness of "learning in context" (Hughes, Bailey, & Karp, 2002). According to Hughes, et al. (2002), cognitive psychologists argued students learn more effectively if they are taught skills in the context in which they will use those skills.

Contextual teaching and learning is a concept that links content students are learning with the context in which it will be used (Berns & Erickson, 1998). According to Owens and Smith (2000), contextual teaching and learning is both a philosophy of education and a continuum of pedagogical strategies. As a philosophy of education, the teacher is responsible for helping students find meaning in education by connecting classroom learning with applications to their everyday lives. The teacher's role is to help students understand the importance of what they are learning. Contextual teaching and

learning enables students to reinforce, expand, and apply academic knowledge and skills in a variety of settings to solve simulated and real problems (Owens & Smith, 2000).

Most students benefit from learning material in the context in which it will be used; they need context to understand, learn, and remember (Lynch, 2000). Teachers are discovering most students' interest and achievement in math, science, and language improve dramatically when connections are made between new information and personal experiences or existing knowledge (CORD, 2001). Students find meaning in the learning process as they draw upon previous experiences and build upon existing knowledge (Berns & Erickson, 2001). Berns and Erickson (2001) further noted since most life situations are not limited to one discipline, the contextual teaching and learning process must extend across disciplines for students to understand how knowledge and skills apply to real situations. These experiences result in a deeper understanding of material which enables students to retain information longer and apply it to future situations.

Lynch, of the University of Georgia, conducted a five-year study which revealed significant benefits to using contextual teaching (as cited in Predmore, 2005). The most significant benefit was students learned more when teachers incorporated contextual strategies. Student participants performed successfully on authentic and traditional forms of assessment. Participants (94%) also felt they achieved more in contextually taught courses. In addition, results revealed students were more highly motivated.

In another study, contextual teaching was used in 20 schools in 13 states in the area of algebra. The approach was used to teach algebra concepts to 326 students who were placed in remedial math because they struggled with math taught in the traditional manner. Their scores were compared to those of 843 traditional algebra students. The results showed no significant difference between the mean test scores of the two groups. The fact that there was no difference between the mean scores may not sound like a positive result until the fact students who were taught contextually had significantly lower entry-level skills is considered (Parnell, 2001).

The Contextual Learning Institute and Consortium Project experimented with contextual teaching methodologies in a variety of subject matter settings. The institute provided training in contextual teaching to 32 teachers of 350 students enrolled in 15 different subject areas. The American College Testing Service (ACT) provided schools with testing instruments to analyze against national norms. Based on the results, students who experienced contextual teaching did as well as, or better than, national norms, with the exception of one school. Findings revealed teachers felt students tried harder and were more interested in their studies; students behaved better; were absent and tardy

less; and seemed to accept more responsibility for their learning. Teacher observations and evaluations also revealed students made greater learning progress during the school year. Student participant comments included: "I used to hate school and I don't dread it now" and "this makes school fun and it is easier to learn" (Parnell, 2001, p. 73).

Even though CTE courses utilize contextual teaching and learning methods, CTE courses are typically electives and since they are not mentioned in the legislation, it may be difficult for lawmakers, school administrators, and teachers to understand how CTE courses can contribute to achieving NCLB goals. However, research has shown CTE improves student learning and student achievement because of the contextual approach that is used in teaching these courses (Glenn, 2005).

In addition to the effective teaching methods used in CTE courses, CTE legislation has stressed the importance of incorporating core academic skills. Recent federal CTE legislation focused on using career-oriented programs to supplement and support academic skills. As a result of the Carl D. Perkins Vocational and Technical Education Act of 1998, many states created specific standards for CTE programs that closely aligned with state academic standards (ACTE, 2006).

In some states, academic content has been made explicit in CTE courses and CTE teachers understand and teach to each state's academic standards. CTE students in these states have outperformed the general high school population on the state's standardized high school exit exams (ACTE, 2006).

Research shows as contextually and project-based disciplines, CTE improves student learning and increases student achievement (Glenn, 2005). According to Glenn, CTE positively impacts school reform goals by enhancing the quality of education, lowering the dropout rate, and preparing students to succeed in college and the workplace.

CTE's Ability to Contribute to Meeting Graduation Requirements

In addition to inclusion of needed academic knowledge and skills, CTE courses can also be a part of the solution to students dropping out of high school (Reese, 2005). According to Thornburgh (2006), approximately 30% of public high school students are dropping out. Reese (2005) noted the National Dropout Prevention Center recognized numerous studies that have demonstrated the positive effect of CTE on reducing high school dropout rates. Many dropouts never see the connection between school and later life, and CTE gives students real-world skills (Thornburgh, 2006) to help them see this connection.

The Silent Epidemic (Bridgeland, DiIulio, & Morison, 2006) study revealed few dropouts report being overwhelmed academically. Most (88%) participants had passing grades in high school. The commonly cited reason for leaving school was boredom with course work. “American public education may be a victim of its own ambition. Rallying around the notion that every child should be prepared for higher education, schools follow a general-education model that marches students through an increasingly uniform curriculum, with admission to college as the goal” (Thornburgh, 2006, p. 35). However, not every child wants to attend college and college prep curriculum is meaningless to them, which results in boredom and a lack of connection between school and their lives. Contextual teaching and learning approaches hold promise in helping to alleviate the problem of students’ disengagement from school.

In *The Silent Epidemic* (Bridgeland, et al., 2006), high school dropouts shared that one way schools can help prevent students from dropping out is improving teaching and curricula to make school more relevant and engaging and enhancing the connection between school and work. Participants (81%) in this study shared that there should be more opportunities for real-world learning and some called for more experiential learning. Participants stressed that the class work in high school needs to make some connection to students’ interests and what they find relevant.

Kulik (1998) reviewed studies from the late 1960s to the early 1990s which addressed whether CTE can help prevent students from dropping out of high school. After considering descriptive studies and studies with experimental designs, he concluded participation in CTE programs increased the likelihood non-college-bound students would complete high school. He estimated participation in CTE courses decreased the dropout rate by about 6%.

Stone and Alfeld’s (2004) research revealed high school CTE courses reduce the likelihood of youth leaving school prematurely. The reasons cited as to why these programs work at preventing drop outs are: helping make school work real and engaging youth in school. Students are able to apply coursework in practical, relevant contexts in CTE courses.

Principals’ Perceptions

High school principals’ perceptions regarding the ability of CTE programs to contribute to schools achieving the goals of the NCLB Act are key to the future of secondary CTE programs. As schools face the dilemma of how to increase test scores and graduation rates, funding will be put into programs and courses that contribute to successfully achieving these objectives. High school CTE teachers may firmly believe the classes they teach provide students with the academic knowledge to perform well on

the state exams and the motivation to continue attending high school until graduation, but the principals must believe these things to be true as well. With more funding decisions being made at the local level, high school principals will decide which programs and courses are supported and which have to be eliminated in order to support the ones that are producing results. However, there is not much research regarding perceptions of principals and teachers.

One study focused on the extent to which Washington State High School principals perceived CTE curriculum content to be aligned with Essential Academic Learning Requirements (EALR) in reading, writing, math, and science (Bertelson & Johnson, 2006). The majority of principals surveyed agreed (highly agreed, 14%; agreed, 40%; somewhat agreed, 30%) CTE classes prepare students for the Washington State Assessment of Student Learning achievement test and CTE classes can reinforce EALR competencies in related academic classes (highly agreed, 51%; agreed, 36%; somewhat agreed, 10%). A majority of principals also perceived CTE classes have somewhat aligned to highly aligned writing, reading, math, and science EALRs; the level of agreement varied by core area and CTE content.

Research Method

Conceptual Framework

Based on discussions at state conferences and literature addressing CTE's ability to address the goals outlined in NCLB, there was concern regarding whether high school administrators and teachers were aware of the impact CTE courses and programs could have on students' and ultimately, schools' abilities to achieve NCLB goals. The NCLB Act is in the forefront of all decisions being made at the secondary level in regard to which programs to support. The future of secondary CTE programs rests on those who make decisions regarding which programs to cut. In order for CTE to survive, these individuals must recognize the contribution CTE programs and classes make in achieving NCLB objectives. Teachers in CTE programs also must recognize the ability of their courses to help their students and schools achieve the objectives of NCLB. Teachers may believe their programs contribute and may voice these beliefs, but if their principal does not, their programs may be in jeopardy. The hope of this study is to determine CTE teachers and high school principals alike recognize the contribution CTE programs can make to schools across the state in achieving the goals of NCLB.

Subjects

Using the self-report survey method of descriptive research, participants were Illinois high school principals and CTE teachers. Principals and teachers were identified from the Illinois State Board of Education's Web site. From the list of 1,530 principals and 4,474 teachers, 499 principals (33%) and 499 CTE teachers (11%) were randomly selected based on the principle that it is not necessary to "sample more than 10% of the population to obtain adequate confidence" (Alreck & Settle, 1995, p. 62). The decision to include a higher percentage of principals in the study was based on the belief that the return rate for principals would be lower based on Bertelson and Johnson's (2006) return rate.

Instrumentation and Data Gathering

Two survey instruments were created to determine perceptions of high school principals and CTE teachers. The surveys were developed based on a review of literature and the primary goals of the State of Illinois in regard to meeting the objectives of the NCLB legislation. The instrument developed for principals included 23 items and the instrument for teachers had 30 items. Both instruments utilized open-ended, yes/no, checklists, and four-point Likert scale (strongly agree, agree, disagree, strongly disagree) responses. On the survey developed for principals, there were 6 open-ended items, 2 yes/no, and 4 checklists. The teacher survey contained 6 open-ended items, 5 yes/no, and 8 checklists. The same 11 Likert scale items were on both surveys. The instruments were tested for validity by selected prominent CTE educators, and feedback was used to add appropriate activities, clarify items, and improve organization.

The teacher survey contained three sections: Your Views on the No Child Left Behind Legislation and Career and Technical Education, Your School Information, and Your Information. Using a four-point Likert scale, the "Your Views on the No Child Left Behind Legislation and Career and Technical Education" section assessed teachers' perceptions of the impact NCLB has had on their CTE programs. The Your School Information and The Your Information sections collected demographic information.

The survey completed by high school principals was comprised of two sections: Your Views on the No Child Left Behind Legislation and Career and Technical Education and Your School Information. Items in Your Views on the No Child Left Behind Legislation and Career and Technical Education were identical to those on the teacher survey. The Your School Information section contained demographic items.

Randomly selected high school principals and CTE teachers were mailed a cover letter and survey instrument. The cover letter identified a Web site that contained the survey if participants preferred to complete the instrument electronically. One follow-up mailing consisted of a postcard with the Web site address being mailed to all

non-respondents. At the end of the follow-up period, 133 (26.65%) principal and 128 (25.65%) teacher surveys were returned. Of the surveys returned, 123 (24.64%) principal and 114 (22.85%) teacher surveys were used in the data analysis due to missing responses in the 11 items addressing perceptions.

Data Analysis

Excel spreadsheets were used to compile collected data. Descriptive statistics and a chi-square test were utilized. Percentages were used to report the level of agreement for the first questions, What are the perceptions of high school principals related to the benefits of CTE in helping high schools achieve the goals of NCLB? and What are the perceptions of high school principals related to the benefits of CTE in helping high schools achieve the goals of NCLB? In order to determine if there was a difference in the perceptions of high school principals and CTE teachers of the impact of NCLB on CTE, the third question, a chi-square test was performed. The chi-square test is used to evaluate the probability that some factor other than chance accounts for the relationship. Tables were designed to report findings. Individual responses to open-ended items were grouped according to the main theme of responses, and items that represented overall points in each group were selected for inclusion in the report.

For items related to teacher and principal perceptions, the school districts were not matched up as part of the analysis. Many respondents did not identify their school or school district and due to the response rate in the 20% range, there would have been few teachers and principals responding from the same school.

Findings

Question 1: Perceptions of High School Principals

High school principals responded to four-point Likert scale items to determine perceptions regarding NCLB's impact on CTE. Participants were asked to indicate their level of agreement with statements (Strongly Agree, Agree, Disagree, Strongly Disagree). There were 123 principals who responded to all 11 items; these surveys were used in the analysis. The principals were in general agreement with most of the statements (Table 2).

Respondents agreed CTE courses help prepare students to take standardized tests that assess English language arts (91, or 73.98%) and math (106, or 86.18%). As far as the two State goals CTE can impact (academic standards and graduation), respondents also believe CTE can play a role in helping to achieve them. Responses to "CTE courses can help your school meet the goal of 'all students will reach high standards, at a minimum of attaining proficiency or better in reading and mathematics'" were in agreement (107, or 86.99%). The same was true for "CTE courses can help your

school meet the goal of ‘all students will graduate from high school’” with 118 (95.93%) either agreeing or strongly agreeing to this statement. It should also be noted that no principals strongly disagreed with this statement. An overwhelming majority of principals who responded also believe English Language Arts Illinois Learning Standards (97, or 78.86%) and Mathematics Illinois Learning Standards (109, or 88.62%) can easily be incorporated into many CTE courses, as well as developmental reading activities (105, or 85.37%).

Table 1
Principals’ Perceptions

| Item | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|----------------|---------------|---------------|-------------------|
| | <i>n</i> % | <i>n</i> % | <i>n</i> % | <i>n</i> % |
| CTE courses offered at your school help to prepare students to take standardized tests that assess English language arts. | 15 12.20 | 76 61.79 | 25 20.33 | 7 5.69 |
| CTE courses offered at your school help to prepare students to take standardized tests that assess math. | 23 18.70 | 83 67.48 | 11 8.94 | 6 4.88 |
| CTE courses can help your school meet the goal of “all students will reach high standards, at a minimum of attaining proficiency or better in reading and mathematics.” | 24 19.51 | 83 67.48 | 14 11.38 | 2 1.63 |
| CTE courses can help your school meet the goal of “all students will graduate from high school.” | 64 52.03 | 54 43.90 | 5 4.07 | 0 0.00 |
| No Child Left Behind has had a positive impact on | 15 | 62 | 36 | 10 |

No Child Left Behind's Impact on CTE

| | | | | |
|--|-------------|-------------|-------------|-------------|
| CTE enrollment at your school. | 12.20 | 50.41 | 29.27 | 8.13 |
| No Child Left Behind has had a positive impact on the image of CTE at your school. | 1 0.81 | 9 7.32 | 80 65.04 | 33 26.83 |
| No Child Left Behind has had a positive impact on how CTE courses are taught at your school. | 3 2.44 | 20 16.26 | 72 58.54 | 28 22.76 |
| English Language Arts Illinois Learning Standards can easily be incorporated into many CTE courses offered at your school. | 23 18.70 | 74 60.16 | 25 20.33 | 1 0.81 |
| Mathematics Illinois Learning Standards can easily be incorporated into many CTE courses offered at your school. | 26 21.14 | 83 67.48 | 13 10.57 | 1 0.81 |
| Developmental reading activities can easily be incorporated into many CTE courses offered at your school. | 25 20.33 | 80 65.04 | 16 13.01 | 2 1.63 |

A couple statements did elicit a negative response from high school principals. The first of these statements was “No Child Left Behind has had a positive impact on the image of CTE at your school.” Over 90% (113, or 91.87%) of the principals either disagreed or strongly disagreed with this statement. The same was true for “No Child Left Behind has had a positive impact on how CTE courses are taught at your school.” There were 100 (81.30%) principals who either disagreed or strongly disagreed.

Principals were also given an opportunity to respond to an open-ended question asking them to include additional comments regarding the impact of NCLB on CTE. In order to organize feedback, responses were analyzed and grouped together by their general message (graduation requirements, overall impact of NCLB on CTE programs,

importance of CTE courses, financial decision results, NCLB goals/objectives, CTE's ability to address academic requirements). Comments summarizing the overall expression in each group were: "As graduation requirements increase, CTE classes get the squeeze. Only the strong community supported programs will survive and even that is no guarantee," "NCLB will eventually eliminate most CTE courses. Students required to take more math, English, and science must lose electives," "NCLB hurts, not helps, CTE. Sadly these courses are often played down, and the truth is that many students depend upon these courses for career moves. Students need these courses. I wish that people would realize not all students do, and are able, to go to college," "It has really hurt CTE because of the testing. Many of our career/vocational courses were cut due to finances," "NCLB has goals that will never be met by any district. CTE programs are jeopardized because of NCLB. Too many people in education have tunnel vision and are unaware of how students can achieve a meaningful education," and "We have incorporated reading and mathematics across the curriculum—even in CTE courses. However, CTE was already using math and reading extensively before that decision."

Question 2: Perceptions of Career and Technical Education Teachers

Career and technical education (CTE) teachers responded to the same four-point Likert scale items to assess their perceptions. The 114 usable surveys were included in this analysis. Teachers were also in general agreement with most statements (Table 2).

Teachers agreed CTE courses help prepare students to take standardized tests that assess English language arts (89, or 78.07%) and math (103, or 90.35%). Respondents also believe CTE can play a role in helping the State achieve the two goals related to standards and graduation. Responses to "CTE courses can help your school meet the goal of 'all students will reach high standards, at a minimum of attaining proficiency or better in reading and mathematics'" were in agreement (104, or 91.23%). There was even stronger agreement for "CTE courses can help your school meet the goal of 'all students will graduate from high school'" with 109 (95.61%) either agreeing or strongly agreeing. Once again, none of the respondents selected strongly disagree for this item. Almost all of the teachers believe that English Language Arts Illinois Learning Standards (102, or 89.47%) and Mathematics Illinois Learning Standards (112, or 98.25%) can easily be incorporated into many CTE courses offered at their schools, as well as developmental reading activities (102, or 89.47%).

The teachers did disagree with a few statements. Most of the teachers (101, or 88.60%) either disagreed or strongly disagreed with "No Child Left Behind has had a positive impact on CTE enrollment at your school." This was also the case regarding "No Child Left Behind has had a positive impact on the image of CTE at your school." Ninety-seven (85.09%) of the CTE teachers disagreed or strongly disagreed. With "No Child Left Behind has had a positive impact on how CTE courses are taught at your school," 70 (61.40%) teachers either disagreed or strongly disagreed with this statement.

Teachers were also given an opportunity to respond to an open-ended question asking for any additional comments regarding the impact of NCLB on CTE. Responses were grouped by general idea (graduation requirements, overall impact of NCLB on CTE programs, importance of CTE courses, financial decision results, NCLB goals/objectives, CTE's ability to address academic requirements), and comments that summarized the overall expression in each group follow: "NCLB has not let students explore as many courses outside of English, math, science, and social studies," and "I feel that it is being put into jeopardy because NCLB is not taking into consideration that our children learn in many different styles. They need to be able to see how math and reading will apply to their lives later on after they leave high school," "The more emphasis placed on academic areas without practicality, the lower test scores will be produced. What we need are better vocational programs. Most schools are doing away with vocational studies. The students lose interest and don't have a reason to stay in school," "It is taking resources away from CTE," "NCLB is a great idea but impractical in reality," and "Currently, the entire school is focused on reading and math. My department (Ind Tech) is doing developmental reading for information exercises. Overall time in each I.T. course is 1 period per week (20%). Hope it helps." A few teachers did support NCLB in their statements: "Maybe we will have students reading at grade level, and it will cause districts to rescind their 'social promotion' policies" and "I think the concept of NCLB is great. Schools need to be pushed towards meeting high standards. They have been allowed to do substandard work for years and we are failing the students."

Table 2
Teachers' Perceptions

| Item | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|----------------|---------------|---------------|-------------------|
| | <i>n</i> % | <i>n</i> % | <i>n</i> % | <i>N</i> % |
| CTE courses offered at your school help to prepare students to take standardized tests that assess English language arts. | 17 | 72 | 22 | 3 |
| | 14.91 | 63.16 | 19.30 | 2.63 |
| CTE courses offered at your school help to | 28 | 75 | 10 | 1 |

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| | | | | |
|---|-------------|-------------|-------------|-------------|
| prepare students to take standardized tests that assess math. | 24.56 | 65.79 | 8.77 | 0.88 |
| CTE courses can help your school meet the goal of “all students will reach high standards, at a minimum of attaining proficiency or better in reading and mathematics.” | 41 35.96 | 63 55.26 | 9 7.89 | 1 0.88 |
| CTE courses can help your school meet the goal of “all students will graduate from high school.” | 76 66.67 | 33 28.95 | 5 4.39 | 0 0.00 |
| No Child Left Behind has had a positive impact on CTE enrollment at your school. | 3 2.63 | 10 8.77 | 70 61.40 | 31 27.19 |
| No Child Left Behind has had a positive impact on the image of CTE at your school. | 1 0.88 | 16 14.04 | 67 58.77 | 30 26.32 |
| No Child Left Behind has had a positive impact on how CTE courses are taught at your school. | 7 6.14 | 37 32.46 | 56 49.12 | 14 12.28 |
| English Language Arts Illinois Learning Standards can easily be incorporated into many CTE courses offered at your school. | 44 38.60 | 58 50.88 | 11 9.65 | 1 0.88 |
| Mathematics Illinois Learning Standards can easily be incorporated into | 53 46.49 | 59 51.75 | 1 0.88 | 1 0.88 |

many CTE courses offered at your school.

| | | | | |
|---|-------|-------|-------|------|
| Developmental reading activities can easily be incorporated into many CTE courses offered at your school. | 43 | 59 | 12 | 0 |
| | 37.72 | 51.75 | 10.53 | 0.00 |

Question 3: Differences in Principals' and Teachers' Perceptions

In order to determine if there were differences between principals' and CTE teachers' perceptions regarding the impact NCLB has had on CTE, a chi-square test was utilized. The chi-square test evaluates the probability that some factor other than chance accounts for the relationship (Best & Kahn, 1998). Analyses using both 0.05 and 0.01 confidence levels were completed.

There was only one item which revealed a statistically significant difference between the groups. High school principals were in agreement with "No Child Left Behind has had a positive impact on CTE enrollment at your school" while CTE teachers were in disagreement. The difference in proportions is significant, $\chi^2(3, N = 237) = 66.97, p < .0001$. At the 0.05 confidence level, the threshold was 7.81 and at the 0.01 confidence level the threshold was 11.34. The conclusion was robust at both levels and suggested very strong evidence against the null hypothesis of no difference in perceptions.

Conclusions and Discussion

Several limitations to this study are warranted. The return rate (27% for high school principals and 26% for CTE teachers) needs to be considered. This return rate may not have been as high as it could have due to the listing available was two years old. Subjects of this study were from one state, and each state has established its own benchmarks and standards to meet the goals of the NCLB legislation. As a result of these limitations, conclusions should not be generalized.

Based on the level of agreement to the first three items (CTE courses offered at your school help to prepare students to take standardized tests that assess English language arts and assess math and CTE courses can help your school meet the goal of "all students will reach high standards, at a minimum of attaining proficiency or better in reading and mathematics) in the findings, high school principals and CTE teachers believe CTE programs have the ability to help schools meet the academic levels in math, reading, and language arts. There was overwhelming agreement from participants supporting CTE's ability to help their schools meet the goal of reaching high academic standards. These perceptions are in agreement with the research related to the teaching methods utilized in CTE courses (ACTE, 2006; CORD, 2001; Glenn, 2005; Lynch,

2000; Parnell, 2001; Predmore, 2005). Glenn (2005) stated that teaching methods traditionally used in CTE courses are effective in strengthening basic skills.

Participants also believed CTE programs are able to help students graduate from high school, another goal of the NCLB Act, based on responses to “CTE courses can help your school meet the goal of ‘all students will graduate from high school’” shared in the findings. This belief has also been supported in literature (Bridgeland, et al., 2006; Reese, 2005; Thornburgh, 2006). Thornburgh’s (2006) research identified five things schools could do to help reduce the number of dropouts with one of those things being supporting vocational education. The National Dropout Prevention Center identified studies demonstrating the positive effect of CTE on reducing high school dropout rates (Reese, 2005).

Even though participants in this study were in agreement regarding the benefits of CTE programs in helping schools achieve these goals outlined in the NCLB ACT, there was one difference in perceptions between the two groups. Principals agreed NCLB has had a positive impact on CTE enrollment at their schools while CTE teachers disagreed. The analysis provided very strong evidence that there was a difference between perceptions of the two groups on this item.

Based on the study, principals and CTE teachers do believe CTE courses are beneficial in helping high schools achieve two of the goals established in the NCLB Act—achieving high academic standards and all students graduating from high school. Both groups have similar perceptions regarding benefits CTE programs can provide.

Implications for Practice

According to research, teaching methods used in CTE courses are effective in helping students learn and retain content and in motivating them to stay in school. However, further research should be completed to ensure these methods are recognized under NCLB’s effective teaching methods. Practices utilized in CTE courses should undergo the process required to show they can meet the rigorous standards and yield the positive results outlined in NCLB. Teachers and administrators who believe in the value of CTE and the practical, contextual approach that is utilized in teaching core academic content must step up and push for these methods to undergo the assessment process.

High school principals and CTE teachers recognize CTE courses help prepare students to take standardized tests that assess English language arts and mathematics. Current and future CTE teachers must be made aware of the importance of incorporating core academic areas and learn how to document how this integration occurs. How students benefit from taking CTE courses, whether that be in achieving academic standards or persisting to graduation, needs to be documented and shared with school leaders, state leaders, and national leaders who make educational decisions and policies.

The NCLB legislation has forced schools to make data-driven decisions, and the only way CTE will continue to be a beneficial secondary program is if teachers document how their lessons assist students in developing the skills needed to be

successful and in turn, show the documentation to administrators, school boards, and legislators. With the focus being on NCLB, data collection and documentation must relate to helping students achieve reading, language arts, and math skills, as well as providing motivation to stay in school until graduation. In addition, state test results should be evaluated to determine if enrollment in CTE courses affects students' test scores.

All CTE teachers should identify Illinois Learning Standards that are addressed in each of their classes and share this information with administrators and school board members. Recognizing English language arts, math, and reading are taught in CTE courses is not enough. Documentation must be readily available and shared with those who make decisions regarding which courses and programs are promoted within schools. A list of learning standards should be developed for each class and these learning standards should appear on unit plans, lesson plans, and other course-related materials.

Further Research

Further research is warranted on this topic. Due to the fact this research was limited to participants in one state, similar research should be conducted on a national level so results can be generalized. Each state has established its own standards and benchmarks and has its own method of supporting CTE programs and these differences will be addressed in a national study.

Research should be conducted to determine the extent to which reading, English language arts, and math are integrated in CTE classes. This research should include if the level of inclusion has changed as a result of NCLB and if the level of awareness among decision makers has increased regarding the ability of CTE courses in students and schools meeting the goals of NCLB. It should also be determined if CTE teachers are documenting the inclusion of these core academic areas in their courses.

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