Indiana CTE Teacher Training Program: Is it Preparing CTE Instructors for the Classroom?

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Coats, Douglas L. Indiana CTE Teacher Training Program: Is it Preparing CTE Instructors for the Classroom?

Abstract

The role of Career and Technical Education (CTE) instructors has become critical to students and the economy. Whether Indiana's CTE teacher programs prepared instructors for the classroom was the focus of this study. There may be educational gaps in student academic and career preparation, including the transition from school to work and from secondary to post-secondary education, that need to be addressed to meet the demands of the workforce. This research examined the best practices and contributing factors of CTE teacher training programs through a qualitative survey of first- and second-year CTE instructors in Indiana. It also examined whether new CTE instructors felt prepared for the classroom.

Acknowledgments

This dissertation is dedicated to a group of wonderful family members who made earning my Doctorate in Career and Technical Education Leadership possible: my late wife, Nancy J. Coats; my son, Jeremy Coats; my late father, B. Junior Coats; and my late mother, A. Jeannine Coats. If it were not for them and Jesus Christ, my Savior, my college education would not have been possible. Thank you very much. I love you all.

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Chapter I: Introduction

The demand for a highly skilled workforce is increasing. As technology advances, the role of Career and Technical Education (CTE) instructors becomes critical. These professionals fill the gap between education and industry/businesses, preparing students for successful careers. Indiana CTE students need highly trained instructors to ensure they receive an excellent education. An individual with exceptional teaching skills can enhance student performance, boost motivation, foster good study habits, and cultivate confidence in students. The consequences of poor teaching can negatively impact a student's self-esteem, lead to disinterest, result in poor academic performance, and hinder a student's future career prospects (School Dekho, 2023).

The current situation in the United States is that many schools, including Indiana, are experiencing a teacher shortage. Due to this issue, Indiana's Division of Teacher Licensing permits emergency licenses in all teaching areas except for physical education and driver's training (See Appendix A). Denney (2023) explained that Indiana was experiencing a significant shortage of teachers, with 1,675 open positions during the 2022–2023 school year. "The teaching profession is bleeding qualified teachers, and our children suffer" (Denney, 2023, para. 2).

Wenzel et al. (2023) indicated that teacher quality was a significant factor in "impacting and improving student achievement" (p. 88). CTE teacher preparation programs were essential because they enabled instructors to integrate work experience into the classroom. Their primary focus was to help students develop academically and become employable. Therefore, excellent teacher preparation programs were needed to provide CTE instructors with effective instructional strategies, lesson planning, curriculum development, and classroom management skills.

Background

In Indiana, most CTE instructors were referred to as “Workplace Specialists.” They had at least a high school diploma and extensive work experience in the field they taught. They were placed in the classroom before receiving teacher preparation training (Indiana Department of Education, n.d.). Other CTE instructors in Indiana included faculty in Business and Information Technology, Family and Consumer Science, and Technology Education (Trade and Industry). These teachers were required to have a bachelor’s degree or to qualify for a Workplace Specialists license to be certified as CTE instructors (Indiana State University, n.d.).

Ball State University and Indiana State University previously offered Bachelor of Science majors in Business, Family and Consumer Sciences, and Technology. However, due to low enrollment, both universities suspended their programs and no longer offered methods of classes by subject area (Ball State University, n.d.; Indiana State University, n.d.). Instead, a general classroom management course was provided to Workplace Specialists during their first or second year of teaching. This course covered topics such as state standards, objectives, lesson planning, teaching strategies, student discipline, learning styles, assessments, grading, and syllabus development. Workplace Specialists in Indiana were not required to take subject-specific methods courses or complete any student teaching assignments (Indiana Department of Education, n.d.).

Statement of the Problem

For individuals teaching at the secondary education level, the Indiana CTE teacher training program may have created educational gaps in student academic and career preparation, including the transition from school to work and from secondary to post-secondary education. These gaps must be addressed to meet current, near future, and future workforce demands.

Additionally, it was unclear to what extent the Indiana teacher preparation program prepared CTE teachers for the classroom. Teacher preparation training programs for CTE instructors have implications for educational institutions, policymakers, industry and business stakeholders, educators, parents, and students.

Purpose of the Study

This study aimed to identify the best practices and contributing factors that are the most significant skills and knowledge learned in the program, which prepares CTE teachers for Indiana's CTE teacher training programs. These programs are designed to equip highly skilled CTE instructors for the classroom. It also examined the extent to which CTE instructors were satisfied with the readiness and preparedness of the teacher program for the classroom. The results could be used to provide information to leaders, administrators, and policymakers of Indiana's teacher preparation programs.

Research Questions

1. What are the best practices of CTE teacher training programs in Indiana that prepare CTE instructors for the classroom?
2. To what extent are CTE instructors satisfied with the teacher preparation training program they received in Indiana?
3. What contributing factors best prepare Indiana CTE instructors to succeed in the classroom?

Significance of Study

The significance of the study was:

- To examine the Indiana CTE teacher training programs' best practices and contributing factors that prepared CTE instructors for the classroom.

- To theorize that Indiana's CTE teacher preparation programs would improve the quality of student education and increase student performance, as well as students' future success.
- To disseminate best practices of CTE teacher preparation training programs that would contribute to the effectiveness of Indiana's CTE programs and benefit students and the workforce.

Assumptions of the Study

The researcher assumed the study's respondents were honest, carefully considered each question, and accurately remembered the Indiana CTE teacher training they received.

Limitations of the Study

- The study's sample size and potential participant biases could have impacted on the findings.
- Data collection methods, such as surveys, may have specific limitations. For instance, self-reported data may not always be accurate.
- Resource constraints, such as timing, funding, or access to participants, could have limited the scope and depth of the research. This might have resulted in insufficient data to address all aspects of each research question.
- Policies, practices, and economic conditions may have adversely affected the study's findings during data collection.

Definition of Terms

For clarity and consistency, the following terms and definitions are provided.

ACTE

The Association for Career and Technical Education is the largest national education association dedicated to the advancement of education that prepares youth and adults for careers (Union County Public Schools, n.d.).

Apprenticeship

A work-based learning experience that lasts from two to four years and prepares a student for a journeyman certificate (Union County Public Schools, n.d.).

Business Partnerships

Provide relevant, realistic experiences that help students see the connection between academic success today and career success tomorrow (Union County Public Schools, n.d.).

Career and Technical Education

Comprises courses in Agricultural Education (Ag), Business, Finance, and Marketing Education (BFM), Career Development Education (CD), Computer Science and Information Technology (CSIT), Family and Consumer Sciences Education (FCS), Health Science Education (HSE), Technology Engineering & Design Education (TED), and Trade and Industrial Education (T&I) (Union County Public Schools, n.d.).

Dual Enrollment

The enrollment of a high school student, 16 years or older, in a community college curriculum or continuing education course, except adult high school. Students earn high school and college credit (Union County Public Schools, n.d.).

Employability

Skills such as punctuality, responsibility, dependability, honesty, teamwork, and integrity, which can all be translated into the work environment (Union County Public Schools, n.d.).

Internship

A work-based learning experience that promotes the development of workplace skills and career planning strategies. Work-based experience bridges the gap between classroom learning and the skills required in the workplace (Union County Public Schools, n.d.).

Professional Development

The term refers to skills and knowledge acquired for both personal growth and career advancement, such as ongoing courses, workshops, activities, and learning objectives designed to help professional educators and staff members enhance their skills in their respective fields (Union County Public Schools, n.d.).

Perkins V

The Strengthening Career and Technical Education for the 21st Century Act, which amended the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV), was signed into law on July 31, 2018. The amended act, now Perkins V, brought changes to the annual federal investment in CTE (Union County Public Schools, n.d.).

Work-Based Learning

An experience where the learning takes place in a work situation, away from school. This includes job shadowing, cooperative education, internships, and apprenticeships (Union County Public Schools, n.d.).

Chapter II: Literature Review

This chapter examines the existing research and theoretical frameworks related to career and technical education (CTE) teacher preparation programs, with a focus on Indiana. As CTE continues to evolve in response to workforce demands and educational standards, the effectiveness of teacher training programs becomes increasingly critical to ensuring instructors are well-equipped to meet student needs.

Purpose of the Study

This study aimed to identify the best practices and contributing factors for Indiana's CTE teacher training programs, which prepared highly skilled CTE instructors for the classroom. It also sought to determine the extent to which CTE instructors were satisfied with the programs. The results were intended to inform Indiana State teacher preparation program leaders, administrators, policymakers, and trainers about what worked best, what needed improvement, and what required change. The research questions that provided the foundation of the data collected were:

1. What are the best practices of CTE teacher training programs in Indiana that prepare CTE instructors for the classroom?
2. To what extent are CTE instructors satisfied with the teacher preparation training program they received in Indiana?
3. What contributing factors best prepare Indiana CTE instructors to succeed in the classroom?

Historical Context of CTE

Understanding the historical development of CTE provides essential insight into its evolution and the foundational principles that have shaped current practices. This context

highlights how CTE has transitioned from vocational training focused on manual skills to a more comprehensive educational approach emphasizing academic integration and career readiness. Building on this background, the section on "Philosophies and Programs" explores the underlying educational philosophies that guide contemporary CTE initiatives and details the variety of programs designed to meet diverse student and industry needs. Together, these sections establish a framework for evaluating how historical influences continue to inform modern CTE practices and teacher preparation efforts.

Philosophies and Programs

In 1850, the United States had fewer than 60 high schools, and vocational education was not a local concern. Craftsmen primarily learned their trade from each other or family members. However, the landscape began to change as public leaders such as Benjamin Franklin, George Washington, Robert Livingston, and John C. Calhoun championed agricultural education. Their influence led to the development of college agriculture programs (Barlow, M., 1976a).

Industrial drawing was introduced as a class in the 1870s during the manual training movement. However, students were not exceptionally well prepared due to a lack of teacher training on how to instruct the use of tools effectively. Therefore, Victor Della Vos separated metal from wood shops and provided each student with tools. He then created drawing exercises ranging from the least difficult to the most challenging. His lessons required the teacher to provide individual student assistance, and a skilled craftsman taught the courses (Pautler, 1999).

During the 1860s and 1870s, business education began to take shape in private schools. Courses included bookkeeping, handwriting, stenography, shorthand, filing, and typewriting. The introduction of the typewriter in 1868 further facilitated the integration of business education into secondary high schools (Barlow, M., 1976a).

The New York Trade School was founded in 1881, marking a significant milestone in the development of vocational education in the United States. Its faculty played a role in developing a philosophy of using advisory committees representing each trade program. These committees played a crucial role in determining the curriculum for each vocational program and ensuring that students were equipped with the necessary skills for employment (Barlow, M., 1976b).

The Industrial Education Association in New York developed a program called the Kitchen Garden in 1884. Its purpose was to teach the poor how to sew. Employees were needed in this industrial area, and the Kitchen Garden could meet this need while providing an income for the poor. Therefore, teachers were needed for instructional purposes in the Kitchen Garden program (Barlow, M., 1976b).

The Industrial Education Association established New York College for Training Teachers in 1888 to address issues in teacher preparation. As new programs were developed, other vocational teacher training programs emerged (Barlow, M., 1976b).

In the 1890s, members of society recognized domestic problems in the household, and a movement for home economics education emerged. A conference was held in Lake Placid, New York, in 1898. Mr. and Mrs. Melvil Dewey, who lived in Lake Placid, met with Ellen Richards (a chemist known as the founder of home economics education) to discuss in detail how home economics education was a societal need (Barlow, M., 1976b).

Mr. Dewey, the secretary of the New York State Board of Regents and inventor of the Dewey Decimal System, and his wife, Annie, who advocated for home economics education, hosted a meeting with a select group of individuals to discuss the economic and social problems of the home. This group continued to meet and study the training of home economics teachers. It

later became the American Home Economics Association, with a mission to improve community and home living conditions (Barlow, M., 1976b).

Catherine Beecher also helped to initiate the home economics movement. She emphasized that teachers needed to incorporate schoolwork that prepared students for marriage and family life. Beecher wrote a book, Domestic Economy for the Use of Young Ladies at Home, which was used in many school settings that hosted home economics education. Due to local interests and pressure from public leaders, agricultural courses were also taught in secondary schools. Home economics courses were designated for girls, and agricultural studies were assigned to boys (Cornell University Library, 2001).

In the 1900s, vocational education taught civilian workers the industrial skills needed during World War I. After the war, vocational education remained strong and began to include adult education, which helped retrain individuals for new workforce needs. Vocational education also trained individuals with the technical skills needed for World War II (Barlow, M., 1976b).

In 1917, the Smith-Hughes Act was enacted, providing annual funding for vocational education. Each year, the amount increased to its maximum by 1926. In 1929, the George-Reed Act authorized additional five-year funding increases in agriculture and home economics education. However, during the Great Depression, funding was cut, and enrollment in vocational education programs declined, especially in industrial education. In 1934, the George-Ellzey Act replaced the George-Reed Act and provided additional annual funding for vocational education. In 1936, the George-Deen Act was initiated, offering more funding for agriculture, home economics, industrial education, and distributed education (Barlow, M., 1976b).

By 1942, vocational enrollments had significantly increased: home economics by 45%, trades and industries by 30%, agriculture by 23%, and distributed education by 12%. In the late

1900s and early 2000s, an educational movement emerged that aimed to prepare everyone for college, resulting in a decline in vocational education enrollments. To regain enrollment and change the image of vocational education in the United States, the term “vocational education” was replaced with “Career and Technical Education.” CTE programs were marketed to students planning to be employed or to enter college after high school graduation (Barlow, M., 1976b).

There was a shortage of skilled workers, and enrollment in CTE once again increased to meet the economic skills needs of society. Many new programs were introduced with the assistance of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. In addition to trade and industry (technology education), home economics (family and consumer sciences), distributed education (business and marketing), and agriculture (agriculture and horticulture), other areas included health sciences, robotics, heating and air conditioning, cosmetology and barbering, culinary arts, automotive, aviation, fire safety, criminal justice, and many others (Carl D. Perkins Vocational Education Act, 1984.).

Vocational Leadership

Victor Della Vos was the director of the Imperial Technical School in Moscow. In the 1870s, he developed exercises in metal and wood shop programs to support teachers in their training on how to teach students the use of tools. John D. Runkle, president of the Massachusetts Institute of Technology, required instructional tool shop courses to be developed at MIT based on Vos’s training method (Barlow, M., 1976b).

In 1879, Calvin M. Woodward, dean of the Polytechnic School in St. Louis, established a manual training school based on Vos’s system, which utilized tools to teach skills. Woodward also felt that instruction should come from textbooks and hands-on assignments. The textbooks were used to teach theory, while the hands-on portion of tool training provided students with

practical experience. This instructional system became part of the Trade School Movement (Pautler, 1999).

Colonel Richard Tylden Auchtmuty founded the New York Trade School in 1881. He utilized Woodward's manual training and supplemented it with additional studies, including employment skills. In 1883, the school offered a more extensive range of programs and became known more as a technical rather than a trade school (Barlow, M., 1976b).

In 1891, the Williamson Free School of Mechanical Trades in Philadelphia added another concept to its trade programs. Administrators concluded that students also needed an apprenticeship experience near the end of their training. Employers reported that apprentices from the school were better prepared than adult employees who had only on-the-job training. Isaiah V. Williamson, founder of the school, believed that not having an apprenticeship experience as part of the program would hinder students' success in employment. He concluded that "any able-bodied, industrious, and economical young man who could learn a trade would become a useful citizen and earn a living." The Williamson School also added general education courses to support the trade programs (Barlow, M., 1976b).

Another vocational education leader from 1850 to 1900 was Carol D. Wright, president of Clark College in Massachusetts. Wright advocated for industrial training in public schools, concluding that students should study English, arithmetic, and a trade at the secondary level to be successful after high school (Barlow, M., 1976b).

Charles Prosser was also a prominent figure in vocational education, particularly during the early to mid-20th century in the United States. He is best known for advocating for professional development and teacher training in career and technical education. His philosophy emphasizes that educators in these fields should be knowledgeable in pedagogical strategies and

possess extensive subject matter expertise in their respective vocational areas. He advocated for subject matter expertise, teacher training and professional development, and integrating technical instruction with work experience. Charles Prosser grew up in New Albany, Indiana. A career center for high school students is located there—Prosser Career Center (Knoll, n.d.).

In the 1970s and 1980s, Robert K. Greenleaf significantly influenced vocational education through his seminal work on servant leadership. His written principles helped shape vocational education, emphasizing service leadership, collaborative learning, a student-centered approach, ethical leadership, and mentorship (Greenleaf, 1991).

Legislation/Policies

During the earlier part of the period from 1850 to 1900, the Workingman's political party advocated for legislation that would extend the rights of employees and include free public education. In the United States, the educational system is the responsibility of each state, not the national government. Nothing in the Constitution provides for a national education system (Barlow, M., 1976a).

The Morrill Acts of 1862 and 1890 provided federal land and funds to establish colleges that teach agriculture and mechanical arts. In 1887, through the efforts of Senator William H. Hatch, the Experimental Stations Act provided funding for states to establish experimental stations where agricultural research could be conducted (Pautler, 1999). Senator Justin Morrill then worked with Senator Hatch to create the Morrill Act of 1890. It provided initial funding of $15,000 to each state, with an annual increase of $1,000 over the next ten years. This allowed the sale or lease of public lands for agricultural and mechanical arts programs (Barlow, M., 1976b).

The Smith-Hughes National Vocational Education Act was passed by the U.S. Congress in 1917 to promote vocational education. It provided funding starting with $1,655,586 during the

first year and increasing annually until $7,161,726 was achieved in 1926, with an enrollment of 900,000 individuals in vocational education. After the funding ended, enrollment declined (Barlow, M., 1976b).

The George-Reed Act, passed by the U.S. Congress in 1929, provided $2,500,000 over five years in agriculture and home economics, with enrollment increasing. In 1934, the George-Ellzey Act was approved with $3,000,000 in appropriations spread over three years for agriculture, home economics, and trade and industry education. Enrollment in those career training programs increased during this time (Barlow, M., 1976c).

The George-Deen Act was approved in 1936, providing increased appropriations of $4,000,000 to each vocational field (agriculture, home economics, and trade/industry) and $1,000,000 to distributive education, effective in 1937, with no term limitations. This act also provided $1,200,000 for vocational teacher training and $350,000 for the U.S. Office of Education (Barlow, M., 1976c).

In 1939, President Franklin D. Roosevelt directed the U.S. Office of Education to:

- Encourage public vocational schools, provide employee job training for aircraft companies, conduct foremen workshops, provide vocational teacher training, develop instructional facilities, and provide evening classes.
- Raise vocational instruction standards.
- With assistance from the U.S. Labor Department and War Department, analyze occupations and develop vocational training programs based on occupational needs.
- Encourage local and state governments to extend aviation school facilities.
- Encourage vocational education state boards to provide aviation instruction for individuals from the National Youth Administration (Barlow, M., 1976c).

In 1940, the legislature approved additional appropriations of $15 million for military defense training. By 1942, enrollment in vocational education had increased by 2.6 million and continued to rise, except during the Depression. In 1946, after World War II, the Vocational Education Act was approved. It amended appropriations for the George-Deen Act, allocating $10,000,000 for agriculture, $8,000,000 for home economics, $8,000,000 for trade and industry, $2,500,000 for distributive education, and $350,000 for the U.S. Office of Education (Barlow, M., 1976c).

Beginning in the late 1950s and continuing through the 1960s, a social revolution emerged, focusing on concerns about unemployed, underemployed, and disadvantaged individuals. Numerous legislative amendments and laws were developed to address these societal concerns. One of those legislative actions was the Vocational Education Act of 1963. It established an Advisory Council for Vocational Education, focusing on training all community groups for the job market (Barlow, M., 1976c).

According to an article from the ACTE, Coming of Age: 1926–1976, the 1970s marked the point when “every U.S. state and territory now offers federally aided vocational education programs. Each state has a vocational education board to set policy. Federal funds can be used for vocational program operations” (Barlow, 1976c, p. 1).

In 1984, the Carl D. Perkins Vocational and Applied Technology Education Act replaced the Vocational Education Act of 1963. From 1985 to 1989, it funded vocational training programs, state grants, national programs, support for local community-based organizations, consumer and homemaking education, adult training and employment, career counseling, industry/education partnerships, and bilingual vocational training (Carl D. Perkins Vocational Educational Act, 1984).

In 2018, the Carl D. Perkins Vocational and Applied Technology Education Act was updated for the fifth time. It still provides funding for vocational plans; however, to receive this funding, states and local school districts must complete a needs assessment every two years. The funds from this act must be used for vocational program needs determined by the needs assessment, including for special population groups (Carl D. Perkins Educational Vocational Act, 1984).

External Factors

The 1850s marked a period of significant European immigration to the United States. Schools were established to help immigrants understand the American way of life. The Workingman's movement also required schools to educate potential employees. Cities and towns were built rapidly, resulting in a significant increase in industrial growth. These industries included textile mills, shoe factories, pottery, and iron mills (Barlow, M., 1976a).

The trade school movement emerged in the 1880s because industrial shops and factories struggled to train employees and meet demand. These schools were located at both the secondary and post-secondary levels. This also included adult evening classes. Evening classes were not as successful because they took place for many adults after a full day of work. Therefore, the number of trade schools offering daytime classes increased. These included private tuition-based and company-owned schools (Barlow, M., 1976b).

Similarities and Future Policy/Practice Implications

In the United States, vocational education is now commonly referred to as CTE. Changing the term vocational education to career technical education has helped increase awareness and foster a better understanding of the goal of CTE programs. The secondary-level goal is to provide students with the skills to continue their education and develop employability

skills. Programs such as construction, health science, automotive services, computer networking, business administration, management, marketing, accounting/finance, culinary, barbering/cosmetology, criminal justice, diesel technology, aviation, precision machining, industrial automation and robotics, computer science, and engineering help communities recognize how vital career technical education is for both secondary and post-secondary students. Therefore, highly trained CTE instructors remain crucial, and outstanding CTE teacher training is necessary to prepare students for various career opportunities (Indiana Commission for Higher Education, n.d.).

It is becoming a requirement for states to develop pathways to help address the labor shortage in the workforce. For example, if a student in Indiana does not perform at a certain level on the SAT, the student must complete a pathway to graduate. This requirement has led to an increase in enrollment in CTE programs, driven by high demand for these programs. Secondary and post-secondary schools are expected to partner in developing these pathways and to provide secondary students with dual enrollment at both levels (Indiana Commission for Higher Education, n.d.).

The instructional style resembles that of the vocational education era of 1850–1900. Textbooks and materials teach theory, which is then put into practice through hands-on projects. Near the end of the program, students participate in an internship or an apprenticeship. However, a significant difference between current and 1850–1900 vocational education is that all programs are now open to all genders. There is also a national and state push for special populations, such as non-traditional students and those with economic or academic disadvantages, to have equal access to any CTE program (Indiana Commission for Higher Education, n.d.).

Secondary and post-secondary schools with CTE programs that use Perkins funding are required to conduct a needs assessment every two years. This needs assessment examining current and future community job openings. It is a collaborative study with all stakeholders (i.e., employers, teachers, students, parents, secondary and post-secondary schools, business chambers, advisory boards, and state representatives for workforce development). Schools are encouraged to offer high-demand CTE programs that meet community needs and to provide professional development opportunities for CTE teacher training (Indiana Commission for Higher Education, n.d.).

Current Landscape of CTE Teacher Preparation

Gordon (2010) explained that multiple factors impact the preparation of CTE instructors. The first factor is that universities have fewer programs to prepare CTE instructors. In the 1990s, Gordon reported a 10% decline in teacher preparation programs at the college level.

The second factor relates to an individual's academic background or industrial experience. Gordon (2010) stated that "the Perkins Act does not require grantees to define a highly qualified CTE instructor or to set goals for ensuring that students in CTE programs have access to one. CTE instructors are less likely than high school teachers to hold baccalaureate degrees" (p. 1).

The third factor is teacher shortages. Gordon (2010) indicated that the CTE teaching force is older than most academic faculties and is experiencing a high rate of retirement. Secondary school populations are increasing in both public and private institutions, making it challenging to fill CTE teacher positions.

The fourth factor is the alternative routes to licensure. CTE instructors do not necessarily need a college education. Due to the teacher shortage, many states have developed alternative

licensure procedures, including hiring individuals with only work experience in the CTE field or issuing emergency licenses (Gordon, 2010).

On a positive note, the fifth factor is related to professional development. Gordon (2010) indicated that national data show that most CTE instructors receive and participate in professional development and that many states encourage externships. Externships provide CTE instructors with field experience in the community.

CTE Teacher Preparation and Education - Indiana

The Indiana Department of Education refers to its CTE teachers as Workplace Specialists. explains, “Teacher training for workplace specialists is to be completed during the first year of teaching. If the teacher is hired after registration closes in early August, the teacher must register for the training the following school year.” Workplace Specialists must have a professional teacher mentor during their first year of teaching and must pass three content areas (reading, writing, and math) in the Test of Adult Basic Education (TABE) exam before the end of their second teaching year (Indiana Department of Education, n.d., p. 1).

Qualifications and Standards of CTE Instructors

Keily and Perez reviewed the 50-State Comparison on Secondary CTE by the Education Commission of the States. The report provides general information, rather than specific details, on CTE teacher preparation in each state. Keily and Perez summarized five requirement areas for CTE teacher certification or licensure. They are secondary and post-secondary diplomas, work experience, industrial certifications, state or national assessments, and CTE teacher training through professional development, mentorships, and externships. Each state varies in the areas it uses for requirements and the amount required (Keily & Perez, 2020).

Requirements for a CTE Teaching License - Indiana

Indiana Workplace Specialists must be at least 21 years old, hold a minimum of a high school diploma, and have at least 4,000 hours of occupational work experience, depending on the number of years in a career field. The occupational experience must be verified by a letter from current or former employers. Self-employment experience must be verified with a profit/loss statement from federal income tax returns. Workplace Specialist I candidates must also have received their cardiopulmonary resuscitation certification and completed training in suicide prevention. The Workplace Specialist I license expires after two years and can be renewed once for another two years (Indiana Department of Education, n.d.).

When an individual completes their first two years of teaching, the teacher training program, a professional development plan (PDP), and all three content areas of the TABE exam, the teacher may apply for a Workplace Specialist II license. It expires in five years. Suppose a CTE teacher does not pass one or more content areas of the TABE exam after multiple attempts. In that case, the teacher may enroll in a university course and must earn at least a "B" or higher before converting their teaching license to the Workplace Specialist II (Indiana Department of Education, n.d).

Workplace Specialist II license holders are required to complete their PDP with assistance from the CTE director. Completing 90 hours of the PDP or six college credits in education allows the Workplace Specialist to renew their license for another five years. All supporting documentation must be provided to the CTE director for approval (Indiana Department of Education, n.d.).

Diversity and Inclusivity of CTE Instructors

Advance CTE indicates that the shortage of CTE instructors and the lack of diversity hinder equitable access to CTE programs for students. CTE teacher diversity has been linked to increased academic performance, lower absenteeism, and reduced suspension among non-white students. Despite these benefits, research shows that the CTE teacher population is primarily white. “An analysis of data reported for the Carl D. Perkins Career and Technical Education Act (Perkins V) reveals that 51 percent of secondary CTE concentrators (students) were minority learners in 2021–22; however, only 13 percent of CTE instructors in public schools were minority individuals” (Advance CTE, 2024, p. 1).

To improve CTE teacher diversity and inclusivity, Advance CTE recommends:

1. Incorporating educator diversity into the local comprehensive needs assessment.
2. Collaborating with organizations to promote CTE teaching careers, such as Black colleges and universities, institutions assisting Hispanic communities, the National Society of Black Engineers, and the National Association of Minority Contractors.
3. Marketing CTE teaching careers to minority individuals.
4. Providing options and support for CTE teacher preparation, licensure, and hiring. Examples include financial assistance, alternative professional development and online courses, instructor collaboration, mentorships, externships, professional learning communities, competitive salary and benefits packages, and diverse hiring practices.
5. Prioritizing retention and professional learning by creating a welcoming and inclusive environment for minority teachers.
6. Identifying and accessing funding streams that support the diversity of CTE teachers.

7. Promoting CTE instructor diversity through state and federal legislation (Advance CTE, 2024, pp. 6–28).

Challenges for CTE Teacher Preparation Programs

Kistler and Dougherty (2024) explained that challenges in CTE teacher preparation programs include teacher shortages and low teaching salaries. CTE instructors can earn 20% more in business and industry career fields. They discovered that the turnover rate of CTE instructors in Tennessee schools is 18%. In the United States, the national teacher shortage is causing CTE administrators to have issues finding instructors to fill open positions 57% of the time (Kistler & Dougherty, 2024, p. 1).

In Tennessee, individuals can receive a CTE teaching license by completing a bachelor's degree in business, family and consumer science, agriculture education, or by having work experience in areas such as health science, heating and air conditioning, construction, information technology, and cosmetology. Kistler and Dougherty (2024) found that CTE instructors with work experience were more likely to leave the teaching profession than those with a bachelor's degree. They also found that in Tennessee, "teachers in the high-growth, hard-to-staff CTE areas are: 1) more likely to leave teaching; 2) difficult to replace, creating net reductions in the number of students who can be served; and 3) earn the most money in their post-teaching employment compared to other high school teachers who exit teaching" (Kistler & Dougherty, 2024, Section: Insights on CTE Workforce Dynamics from Tennessee).

Future Directions

Enrollment in high school and post-secondary CTE programs is increasing to address the needs of businesses and industry. This creates a significant demand for CTE instructors to fill open teaching positions. Perkins Collaborative Resource Network shared, "CTE programs help

to underpin America's workforce and seek to engage young people and adult learners at an economy of scale needed to address employer needs. The education industry is at a critical point, struggling to find its future workforce. CTE must be part of a comprehensive strategy at the state and local levels to address this challenge. The U.S. Department of Education issued a joint letter to the U.S. Department of Labor stating that local education and workforce leaders need to be encouraged to take a series of actions to address teacher and school staff shortages, increase teacher pay, and further invest in the teaching profession" (Perkins Collaborative Resource Network, n.d., p. 1).

New America suggests that states experiment with alternative CTE teacher certification routes to increase the supply of CTE instructors. For example, New York City's program is called the "Success Via Apprenticeship Program" (SVA). "SVA recruits CTE instructors from recent high school graduates through a five-year program that starts each candidate in the classroom and gives two years of mentored teaching, three years of industry experience, and five years of college courses. Apprentices learn how to teach under the supervision of an experienced teacher, planning and delivering lessons twice a week. They are then immersed in a company's industry setting to gain hands-on experience. SVA selects this placement to gain practical knowledge of the candidate's chosen industry. Candidates interview for their position to gain a thorough understanding of the job selection process. SVA teacher apprentices earn 44 college credits through SVA at New York City College of Technology. These 44 credits are required by the New York State Department of Education for CTE instructors towards their associate's or bachelor's degree. Some students finish the program in four years rather than five by completing the competencies and meeting the New York Department of Education's CTE teacher requirements for a transitional certification. SVA tracks the completion of their program, which

they define as candidates earning New York State licensure and securing a CTE teaching position. SVA collaborates with principals at schools offering CTE programs and nominates candidates. They then work to place nominated candidates back into their high schools. SVA's self-reported completion rate is 90 percent" (Ulin, A., 2024, Section: New York City).

Summary

In the mid-19th century, vocational education was informal, mostly taught through family or a mentor. Agricultural education has evolved into a growing trend, resulting in the development of college curricula. By the 1870s, although teachers had insufficient training, vocational training was being introduced in high schools. Institutions like the New York Trade School, founded in 1881, marked a significant shift in vocational education. These institutions used advisory boards from various trades to develop the curriculum. In the 1890s, schools began focusing on domestic skills by introducing home economics education.

Victor Della Vos and Calvin M. Woodward were pivotal individuals who played significant roles in shaping vocational education. In 1890, legislation such as the Morrill Act provided funding for agricultural and mechanical education. As industrialization flourished, the trade school movement emerged to meet the workforce's needs, resulting in structured vocational programs at various educational levels. The term vocational was replaced with Career and Technical Education to enhance perceptions of CTE programs in response to societal changes, including shifting labor market demands. Today, CTE offers a diverse range of programs, including health sciences and advanced technologies, that prepare students for employment and further their education.

However, teacher shortages, diversity issues, and varying state requirements for CTE instructors have become administrative challenges. A close examination of teacher preparation

programs, advocacy for effective instructional methodologies, and professional development is necessary. Promoting teacher diversity and student inclusivity also helps schools broaden access to CTE opportunities. Innovative approaches to teacher preparation, such as the “Success Via Apprenticeship Program” in New York City, should be developed as potential pathways to address current teacher shortages and enhance the quality of Career and Technical Education. Addressing the CTE teacher shortage and providing excellent teacher preparation programs reflects a commitment to educational advancement, equitable access to quality education, and meeting society’s workforce needs.

Chapter III: Method and Procedures

This chapter presents the research design and methods employed in this study, which utilizes a mixed methods approach to explore the effectiveness of Indiana's CTE teacher training programs. By integrating both qualitative and quantitative techniques, the study aims to provide a comprehensive understanding of the preparedness of CTE instructors and the factors influencing their training experiences. The chapter outlines the procedures for selecting participants, data collection instruments, and analysis strategies for both data types. Additionally, it discusses ethical considerations and the rationale for choosing a mixed methods approach to ensure a robust and nuanced investigation into the research questions.

Purpose of the Study

Chapter 3 outlines the methods and procedures employed in this research. This study aimed to identify the best practices and contributing factors for Indiana's CTE teacher training programs, which prepared highly skilled CTE instructors for the classroom. It also examined the extent to which instructors were satisfied with the programs. The results were intended to inform Indiana State teacher preparation program leaders, administrators, policymakers, and trainers about what worked best, what needed improvement, and what changes were required to improve the program. The research questions that provided the foundation of the data collected were:

1. What are the best practices of CTE teacher training programs in Indiana that prepare CTE instructors for the classroom?
2. To what extent are CTE instructors satisfied with the Indiana teacher preparation training program they received? Moreover,
3. What contributing factors best prepare Indiana CTE instructors to succeed in the classroom?

Indiana Teacher Training Programs

Indiana's 2024–2025 Workplace Specialist I Teacher Training Program started on August 19, 2024. Most schools in Indiana had already started their school year before this date. At the start of the program, 226 CTE instructors were registered. By November 15, 2024, 16 teachers had dropped out of the program. On February 15, 2025, 202 participants were still enrolled. By May 15, 2025, two additional CTE instructors had dropped. Eight instructors failed the training program, while 192 (85%) teachers completed the CTE teacher training program for the Workplace Specialist I license, as reported by the Indiana Department of CTE (E. Lazaros, personal communication, May 27, 2025).

The bachelor's degree and Workplace Specialist CTE teacher training programs place a strong emphasis on establishing and maintaining advisory boards. Advisory board members include individuals from industry and business who work in the related CTE field being taught. This forms a strong partnership between schools and industry. Advisory board members provide CTE instructors with industry standards and certifications necessary for students to be employable (Indiana Department of Education, n.d., p. 1).

The bachelor's degree and Workplace Specialist programs do not offer a focus on a specific career curriculum that colleges and universities previously provided through subject-matter instructional methods classes. However, first- and second-year CTE instructors are required to attend Indiana's CTE Conference, where instructors who teach the same career course participate in a roundtable discussion on curriculum and teaching strategies led by experienced CTE instructors. Career center directors also provide professional development days for CTE instructors to visit other schools and related career programs (Indiana Department of Education, n.d., p. 1).

To be licensed as a teacher in Indiana, CTE instructors must have at least 4,000 hours (or 5,000, depending on an individual's educational background) of related work experience. This includes individuals with a bachelor’s degree in teaching and certification as a Workplace Specialist. Depending on available funds, Indiana and local CTE directors sometimes provide instructors with work experience during the summer months (Indiana Department of Education, n.d., p. 1).

Indiana and career center directors offer CTE instructors many opportunities to participate in ongoing workshops, conferences, seminars, and mentorships during the school year and summer months. The Perkins grant supports these opportunities (E. Lazaros, personal communication, May 27, 2025).

The bachelor’s degree and Workplace Specialist CTE teacher training programs both strongly emphasize advisory boards and local industry partnerships. The state requires advisory boards for each local program, and the CTE instructor must maintain the agenda and minutes on file for state auditing purposes. At least two advisory board meetings are required each school year and/or during the summer (Indiana Department of Education, n.d., p. 1).

CTE teacher training programs in Indiana include rigorous discussions of curriculum and content standards through workshops and conference formats. The Indiana CTE Department and local career centers provide consistent and ongoing professional development opportunities for CTE instructors throughout the school year. This includes the Indiana CTE Conference in September (E. Lazaros, personal communication, May 27, 2025).

Career center directors and mentors provide teaching materials, equipment, and tools for each CTE program. However, due to budget constraints, this area can be challenging to keep up to date. Indiana State works to fund local CTE programs with grants and state educational funds.

Each career center's program receives funding based on whether the career field is in high demand and offers valued employment opportunities in Indiana. Funding is also based on the number of high school credits awarded upon completion of the course and the number of students enrolled (Indiana Commission for Higher Education, n.d.).

Research Design

Gall et al. (2003) explained that descriptive research studies a situation at a certain point in time. Questionnaires, interviews, and focus groups are examples of descriptive qualitative methods. Opinions from these methods can be used to support and improve current initiatives and policies (Gall et al., 2003). This study employed a mixed-methods approach, combining quantitative and qualitative research.

A pilot focus group and an online survey were used in this study. A random selection of CTE directors participated in a focus group. Focus groups enabled researchers to interact with participants, thereby enhancing their understanding of the survey data. They also helped determine whether the questions on the survey were interpreted in the same way, with each CTE director and the researcher contributing reliable and valid data (Krueger, 1988). Hosting a focus group of the survey participants was also planned; however, the State of Indiana was conducting its survey at the time this research survey was to be administered. Therefore, the state requested that this research data collection be delayed until the end of the school year. Therefore, it is assumed that the reason none of the survey participants volunteered to participate in a focus group was the timing of the survey.

The research project involved selecting an Indiana population of first- and second-year CTE instructors, implementing an online survey, collecting and analyzing data, interpreting the results, drawing conclusions, and making recommendations. It aimed to determine what worked

best, what needed improvement, and what changes were necessary concerning the Indiana CTE teacher training programs. Specifically, it assessed whether the perspectives of first- and second-year CTE instructors aligned with their views on whether Indiana's CTE teacher training programs adequately prepared them for the classroom and identified the contributing factors that best prepared CTE instructors.

Setting

A random, diverse selection of CTE directors participated in a pilot focus group. The pilot focus group session was conducted using Zoom technology, and descriptive data were collected. The CTE director's pilot focus group approved the survey questions as written.

The research participants were CTE first- and second-year instructors from Indiana who taught in two distinct educational institutions: secondary-level career centers and high schools. All first- and second-year CTE instructors during the 2024–2025 school year received and completed an online survey developed using SurveyMonkey. Each participant who completed the survey received a $10 Amazon gift card. The purpose of surveying all Indiana CTE first- and second-year instructors was to obtain a high response rate. This allowed the data to be interpreted as representative of the views and opinions of first- and second-year CTE instructors across Indiana (Krueger, 1988). The survey provided numerical data. The numerical data were analyzed to determine the strengths and weaknesses of Indiana's CTE teacher training programs. This included best practices, contributing factors, and the opinions of CTE first- and second-year instructors regarding their preparedness for the classroom.

Subject Selection and Description

The targeted population included current first- and second-year Indiana CTE instructors who had completed training through the traditional method (holding a bachelor's degree in

education) and those with relevant work experience in the field. This included CTE instructors from secondary career centers and high schools, as well as various CTE career programs such as healthcare, construction, information technology, and culinary arts. The researcher obtained the contact information (name, email address, and school phone number) of career center directors from the Indiana Association of Career & Technical Education Districts website. The CTE directors forwarded the email to the research subjects with a link to the survey. The email also described the purpose of the research, its importance, and confidentiality procedures (see Appendix B).

Instrumentation

A well-structured survey (see Appendix B) was used to gather data on the strengths and areas for improvement of Indiana's CTE teacher training programs. The survey examined teaching practices, contributing factors, and perceptions of CTE instructor preparedness and effectiveness. It included questions related to demographics (career program, type of teacher training completed, and professional development), perceived preparedness in developing and delivering a curriculum that included objectives, lesson planning, classroom management, teaching methods, strengths of the teacher training program, and areas needing improvement. The survey was administered online and took approximately 10 to 15 minutes to complete. The questions were objective, allowing participants to select their responses. Data from the survey were analyzed using SurveyMonkey.

Reliability and Validity

A pilot study is a small-scale research practice that evaluates the understanding of each survey and focus group question. It can test the feasibility of the research, identify potential problems and limitations, help refine the survey and focus group questions, assess the validity

and reliability of the questions, and evaluate ethical considerations (Critical Appraisal Skills Programme, n.d.). A pilot study was conducted before the actual research. To answer the research questions:

1. What are the best practices of CTE teacher training programs in Indiana that prepare CTE instructors for the classroom?
2. To what extent are CTE instructors satisfied with the teacher preparation training program they received in Indiana?
3. What contributing factors best prepare Indiana CTE instructors to succeed in the classroom?

A survey was used to gather numerical data. The survey was objective and consisted of 14 questions related to the research.

Data Collection Procedures

The data collection was completed in two phases. Phase one was a pilot study to test the survey and determine whether all pilot participants interpreted each survey question consistently. This was accomplished through a focus group of four CTE directors. The contact information for the four randomly selected CTE directors was obtained from the Indiana CTE Directors' website. The participants received an email inviting them to participate in the pilot using an online focus group. The survey questions were provided to the focus group. The discussion helped determine the reliability and validity of each survey question, as well as the three research questions.

Phase two consisted of surveying all first- and second-year CTE instructors in Indiana. The survey provided numeric data, which was analyzed to answer each research question. Steps involved in the data collection process:

1. The researcher obtained the names and contact information of randomly selected Indiana CTE directors from the Indiana Association for Career Center Districts.
2. The four CTE directors received an email with the survey and focus group link. The focus group was held on a scheduled date and time convenient for the participants. The researcher recorded descriptive data from the focus group.
3. The survey was revised based on feedback from the pilot study.
4. The sampling goal was to survey all first- and second-year Indiana CTE instructors who teach at a secondary career center or high school, to obtain a significant sample response.
5. CTE directors emailed the research participants a list of first- and second-year CTE instructors with a link to the survey.
6. Survey participants completed the online questionnaire by answering questions related to the three research questions listed in Chapter One. The researcher used SurveyMonkey to collect, store, and sort the results.
7. The survey collection period lasted three weeks. Participants were informed of the due date in the introductory portion of the survey. Those who did not respond received a follow-up email and had two additional days to complete it. All responses were securely stored in SurveyMonkey. Participants who completed the survey received a $10 gift card.

Data Analysis

The numerical data results were presented in Chapter 4 and table format in Appendices B through N. SurveyMonkey was used to store and analyze the research data. The following mathematical analysis was completed:

Statistics

Frequency – Summary of CTE teacher training program practices, contributing factors, and satisfaction of first- and second-year Indiana CTE instructors with the teacher training program they received.

Patton (1990) indicated that a systematic procedure for identifying and categorizing data should be used. Patterns are identified and verified, enabling the researcher to conclude the analysis of numerical data. After a thorough analysis of the data and calculation of the results, the researcher's conclusions and summary were described in Chapter 5.

Limitations

The following limitations (biases and threats) were considered:

Survey Limitations

- Survey Design – Poorly worded, ambiguous, or leading questions, as well as technical jargon, can result in inconsistent data.
- Sampling – If the sample size does not include a large enough population, the results may not accurately represent the views of CTE instructors throughout Indiana. Therefore, the research surveyed all first- and second-year Indiana CTE instructors for the 2024–2025 school year.
- Response – The willingness and ability of first- and second-year CTE instructors to complete the survey may have skewed the results. The survey's introduction and

directions explained the study's purpose, the importance of participation, and how data would be kept confidential.

- Data Statistics – The statistics provided an overall view of CTE teacher training program practices, contributing factors, and instructor satisfaction. However, they may not have offered sufficient depth for complex analysis. Other best practices or contributing factors may exist that were not captured.
- Regression Analysis – This research analyzed only the survey responses from first- and second-year Indiana CTE instructors, thereby limiting insights related to teaching experience over time.

The overall limitation of using a survey is that it may oversimplify the subject and fail to capture the complexity of independent variables not included in the research. It may not address contextual factors that influence whether a CTE teacher training program adequately prepares instructors for the classroom. A survey also captures data at a single point in time, and responses may vary depending on when the survey is administered during the school year. Therefore, a rigorous survey was developed, and a pilot focus group was conducted to improve validity and clarity.

Focus Group Limitations

- Sample Size – Focus groups typically involve a small number of participants, which may not represent the broader population.
- Group Dynamics – Participant interaction can influence individual responses. Dominant voices may overshadow quieter members, potentially skewing the findings.
- Social Desirability Bias – Participants may offer socially acceptable answers rather than their genuine opinions, which could affect the authenticity of the data.

- Moderator Influence – The skills and biases of the moderator can affect group dynamics and the information elicited. A biased or inexperienced moderator may lead to an unbalanced discussion.
- Lack of Depth – While focus groups can generate rich information, time limitations may prevent exploration of complex topics, unlike one-on-one interviews.
- Difficulty in Analysis – Analyzing qualitative data from focus groups can be time-consuming and complex, requiring close attention to nuance and interpretation.
- Logistical Challenges – Scheduling and recruiting participants for focus groups can be complex and resource-intensive.
- Potential for Bias in Recruitment – If participant recruitment is not well balanced, the findings may reflect only a narrow demographic and exclude diverse perspectives.
- Time Limitations – A fixed session duration may limit the breadth and depth of discussion, potentially resulting in superficial insights.

The primary limitation of the focus group method is that it can constrain generalizability and depth. However, acknowledging these limitations enables the researcher to make informed methodological decisions and utilize focus group findings to complement other research methods.

Summary

The mixed-methods research was designed to answer the following research questions:

1. What are the best practices of CTE teacher training programs in Indiana that prepare CTE instructors for the classroom? 2.
2. To what extent are CTE instructors satisfied with the teacher preparation training program they received in Indiana? 3.

3. What contributing factors best prepare Indiana CTE instructors to succeed in the classroom? Conducting a pilot study ensured the reliability and validity of the survey questions. Research data from the survey were analyzed to answer the three research questions and to make recommendations that help Indiana's CTE teacher training program leaders, administrators, policymakers, and trainers understand what worked best, what needed improvement, and what were necessary to prepare CTE instructors for the classroom.

Chapter IV: Presentation of Findings

This chapter presents the research data from this study of Indiana's CTE teacher training programs and their impact on preparing CTE instructors for the classroom. As CTE programs increasingly focus on equipping students with employability and technical skills, understanding how well teacher training programs satisfy these needs is essential for strengthening the quality and effectiveness of CTE instruction. This analysis was guided by the research objective of determining whether Indiana's existing CTE teacher training programs adequately prepared instructors with technical teaching skills and the ability to create an instructional environment that enhances student engagement and success. Using a quantitative survey method with data collected from first- and second-year CTE instructors, this chapter reports whether Indiana's CTE teacher training programs successfully prepared instructors for the classroom. This chapter provides insight to inform the development of future CTE teacher training programs and enhance CTE instruction statewide by identifying the strengths and weaknesses of current programs. The goal is to present a comprehensive picture of how well these programs meet the diverse needs of CTE instructors in an ever-changing educational landscape.

Indiana CTE Department Survey

The scheduled distribution date for this research survey was delayed by one month. The Indiana CTE Department surveyed the exact date and requested that this research survey be postponed. This research survey was sent to CTE directors on April 21, 2025, and closed on May 18, 2025. This timing was suboptimal, as most schools in Indiana ended their academic year before Memorial Day (May 26, 2025). None of the survey participants volunteered to participate in a focus group, and assumed it was due to the timing of the survey.

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Demographics and Characteristics

This research involved a random sample of first- and second-year CTE instructors throughout Indiana to assess their views on the state's CTE teacher training programs and their preparedness to teach in the classroom. A total of 68 first- and second-year instructors from either secondary career centers or high schools completed the survey. The response rate was estimated to be 23% of the eligible CTE instructor population in Indiana.

Item Analysis

This chapter also presents the results of the data analysis conducted to address the research questions outlined in earlier chapters. The initial section focuses on the item analysis, which evaluates the reliability and validity of the assessment instruments used in the study. Following this, the chapter systematically explores the findings related to each research question, providing detailed statistical and qualitative insights. Together, these analyses aim to offer a comprehensive understanding of the data collected and to inform conclusions regarding the effectiveness of Indiana's CTE teacher training programs.

Question 1 – What is the Level of Your CTE Teacher Training?

Responses were categorized as follows: associate degree, 13.43%; bachelor's degree, 23.88%; master's degree, 11.94%; graduate degree (Ed.S. or Ed.D.), 2.99%; conference or workshop training, 7.46%; and work experience, 40.33%. Participants could select only one option. Sixty-seven participants responded, one skipped this question (see Appendix C).

Question 2 – Where is Your CTE Program Located?

Responses were categorized as follows: career center, 46.27%; high school, 44.78%; and career center located in the high school building, 8.96%. Participants could select only one

option. Sixty-seven participants responded, with one participant skipping the question (see Appendix D).

Question 3 – What is the CTE Program Area You are Teaching?

Responses were categorized as follows: vocational training, 20.59%; health sciences, 17.65%; culinary arts, 7.35%; information technology, 4.41%; business and marketing, 7.35%; arts and communications, 2.94%; construction technology, 5.88%; cosmetology and barbering, 4.41%; automotive technology, 2.94%; manufacturing technology, 4.41%; internships and work study programs, 1.47%; and other (criminal justice), 20.59%. All 68 participants answered this question (see Appendix E).

Question 4 – Did You Receive CTE Teacher Training Before Entering the Classroom?

Responses: yes, 29.85%; no, 70.15%. Participants could select only one option. Sixty-seven participants responded, with one participant skipping the question (see Appendix F).

Question 5 – Have You Received CTE Teacher Training During the School Year?

Responses: yes, 89.55%; no, 10.45%. Participants could select only one option. Sixty-seven participants responded, one skipped the question (see Appendix G).

Question 6 – If Yes to Questions Four and/or Five, Were You Satisfied as a First- and Second-Year CTE Instructor With the CTE Teacher Training Program You Received?

Responses: yes, 83.82%; no, 16.18%. All 68 participants answered this question (see Appendix H).

Question 7 – At What Level Were You Satisfied as a First- and Second-Year CTE Instructor With the CTE Teacher Training Program You Received?

Responses: greatly satisfied, 25.00%; satisfied, 55.88%; dissatisfied, 13.24%; incredibly dissatisfied, 5.88%. All 68 participants answered this question (see Appendix I).

Question 8 – Did the CTE Teacher Training Program Help Prepare You for the Classroom?

Responses: yes, 63.24%; no, 36.76%. All 68 participants answered this question. Participants who did not receive training were directed to select "no" (see Appendix J).

Question 9 – When Should a First- and Second-Year CTE Instructor Receive Teacher Training?

Responses: before entering the classroom, 16.42%; during the school year, 11.94%; both before and during the school year, 67.16%; and other (e.g., “a little before starting teaching, if possible, and then ongoing during the school year”), 4.48%. Sixty-seven participants responded, one skipped the question (see Appendix K).

Question 10 – What are the Best Practices Used in CTE Teacher Training Programs?

Participants were allowed to select multiple responses. Categories included: aligning training with business and industry standards, 67.16%; teaching strategies and curriculum development, 47.76%; integrating work-based learning experiences, 71.64%; participating in professional development, 53.73%; communication/collaboration/professionalism, 53.73%; learning and integrating technology, 35.82%; discussing diversity, 25.37%; networking and advisory boards, 40.30%; developing assessments, 41.79%; and career guidance, 50.75%. Sixty-seven participants responded, with one participant skipping the question (see Appendix L).

Question 11 – What Content Should be Covered in a CTE Teacher Training Program?

Participants were allowed to select multiple responses. Categories included: foundational knowledge of CTE, 54.41%; overview of CTE, 47.06%; history and evolution of CTE, 11.76%; CTE landscape and pathways, 69.12%; curriculum development, 73.53%; instructional strategies, 80.88%; assessment practices, 52.94%; industry connections, 38.24%; work-based learning, 61.76%; classroom management, 80.88%; professional development, 45.59%;

diversity/equity/inclusion, 30.88%; educational policies and regulations, 48.53%; and other (e.g., "all of them"), 1.47%. All 68 participants answered this question (see Appendix M).

Question 12 – What are the Contributing Factors Needed for CTE Teacher Training Programs?

Participants were allowed to select multiple responses. Categories included: strong business/industry partnerships, 60.29%; robust curriculum and standards, 51.47%; professional development opportunities, 58.82%; access to resources and tools, 79.41%; mentoring and support systems, 69.12%; assessment mechanisms, 30.88%; employability skills, 44.12%; inclusivity and diversity training, 27.94%; administrative support and policies, 52.94%; innovation and adaptability, 38.24%; and other (e.g., "methods to increase enrollment and retention"), 1.47%. All 68 participants answered this question (see Appendix N).

Question 13 – What Best Prepares CTE Instructors for the Classroom?

Responses: traditional training (bachelor's degree), 0.00%; work experience, 52.95%; both college and work experience, 44.12%; and other (e.g., "degree in subject"), 2.95%. Sixty-seven participants responded, with one participant skipping the question (see Appendix O).

Question 14 – Would You be Willing to Participate in a One-Hour Focus Group Session to Review the Questionnaire and Answer Follow-Up Questions?

Responses: yes, 0%.

Summary

The University of Wisconsin – Stout Internal Review Board approved the use of participants for this research study (See Appendix P). Based on the research results, 40% of the survey respondents reported having only work experience prior to becoming CTE instructors, while 52% held some form of post-secondary education degree. Additionally, 7% of the

participants indicated that they had received training solely through a workshop or conference. The instructional settings of participants were nearly evenly split, with approximately half teaching at a career center and the other half teaching in a high school. Among the CTE program areas represented, vocational trade and criminal justice emerged as the top two fields, each accounting for 21% of the responses. Regarding training timelines, only 30% of respondents received CTE teacher training before entering the classroom. In contrast, 80% reported receiving first-time or additional training during the school year, while 11% did not.

Most participants (84%) expressed satisfaction with the training they received. Furthermore, 63% of respondents indicated that their CTE teacher training program adequately prepared them to enter the classroom. A significant proportion, 67%, believed that CTE teacher training should occur both before and during the school year. When asked about best practices, the highest-rated approach was integrating work-based learning experiences into the curriculum, selected by 72% of participants. Conversely, the lowest-rated area was discussing diversity, which received endorsement from only 25% of respondents. In terms of content coverage, instructional strategies and classroom management were identified as the most important, with 81% indicating these areas should be emphasized in CTE teacher training programs. Participants also identified access to resources and tools as the most critical contributing factor, with 79% emphasizing its importance. Finally, when asked what best prepares a CTE instructor for the classroom, 53% of respondents indicated that work experience alone was the most effective. In comparison, 44% believed that a combination of college education and work experience was ideal.

Chapter V: Discussion and Conclusion

This chapter critically examined whether Indiana's CTE teacher training programs adequately prepared CTE instructors for the classroom teaching challenges they faced. CTE teacher training programs provide content knowledge and equip instructors with pedagogical skills applicable in the classroom, relevant to industry and business needs, and essential for engaging diverse student populations.

This study explored multiple dimensions of CTE teacher training programs, including best practices, training content, contributing factors, participant satisfaction, and the timing of training to assess instructor preparedness. This chapter analyzed the perspectives of first- and second-year CTE instructors using quantitative survey data to identify areas of strength and gaps in their training. By connecting these findings with the literature discussed in Chapter 2, this chapter offers a comprehensive understanding of Indiana's CTE teacher training programs and their influence on the instructional effectiveness and classroom readiness of new CTE instructors.

Additionally, this chapter outlined the best practices and essential content of CTE teacher training programs to ensure that instructors are equipped to deliver high-quality education and prepare future generations for workforce success. Through this critical evaluation, the study sought to promote ongoing dialogue about the future of CTE education and the vital role of teacher preparedness in achieving positive outcomes for students.

Discussion

CTE has recently gained increasing recognition for its role in preparing students for the demands of the workforce. As industries and businesses continue to grow, particularly in the technology sector, the quality of CTE instruction remains critically important. This study

investigated whether CTE teacher training programs effectively prepared instructors for the challenges they faced in the classroom.

As a reminder, the problem statement for this research was: “For individuals teaching at the secondary education level, the Indiana CTE teacher training programs may cause educational gaps during student academic and career preparation, including transitioning from school to work and secondary to post-secondary education, that must be filled to meet the current, near future, and future work demands.” The purpose of this study was to identify the best practices and contributing factors of Indiana’s CTE teacher training program, which prepared highly skilled CTE instructors for the classroom. It also examined the extent to which CTE instructors were satisfied with the program and whether they felt adequately prepared for the classroom. The results were intended to provide information to leaders, administrators, and policymakers of Indiana’s state CTE teacher preparation programs.

Therefore, the three questions this study aimed at answering were:

1. What are the best practices of CTE teacher training programs in Indiana that prepare CTE instructors for the classroom?
2. To what extent are CTE instructors satisfied with the teacher preparation training program they received in Indiana?
3. What contributing factors best prepare Indiana CTE instructors to succeed in the classroom?

Best Practices

Effective teaching practices, as supported by the data, include instructional strategies, lesson planning, classroom management techniques, and the development of assessment tools. These practices are essential for all educators and particularly critical in CTE, where instructors

must balance pedagogy with industry relevance. The study's findings indicated that a lack of focus on CTE teacher training program content hinders instructors' ability to deliver effective instruction to diverse student populations. States that require teacher training before a CTE instructor enters the classroom tend to produce more competent and confident educators. In contrast, states that lack general guidelines for CTE teacher preparation often delegate program design to individual career centers and high schools, which can result in inconsistent quality and effectiveness.

According to the survey results, the top four best practices identified by participants for a high-quality CTE teacher training program were: aligning training with industry and business standards through partnerships and certifications, emphasizing pedagogy and curriculum by discussing, demonstrating, and sharing effective instructional strategies and curriculum development methods, integrating hands-on learning experiences that allow teachers to engage in industry-based work environments, and providing ongoing professional development opportunities, including workshops, conferences, seminars, and mentorships.

Satisfaction

The research findings suggested a mixed picture regarding CTE instructors' satisfaction with their preparedness for the classroom. According to the data, 25% of respondents reported feeling greatly satisfied, and 55% indicated they were satisfied, bringing the total satisfaction rate to 80%. These instructors believed they were adequately prepared to enter the classroom. However, 20% of respondents reported being either dissatisfied or extraordinarily dissatisfied with their level of preparedness.

A majority of survey participants (67%) indicated that CTE teacher training should take place both before entering the classroom and throughout the school year as part of ongoing

professional development. Currently, Indiana initiates its Workplace Specialist CTE teacher training program after the school year has already begun. This scheduling creates a challenge for many administrators, who are often forced to fill classroom vacancies at the last minute due to resignations or instructor shortages. As a result, newly hired instructors frequently enter classrooms without receiving adequate training beforehand.

Contributing Factors

The survey participants identified four key contributing factors that most effectively support the success of CTE teacher training programs. First, strong partnerships with industry and businesses, particularly through advisory boards and local business collaborations, were emphasized as essential for aligning training with workforce needs. Second, participants highlighted the importance of a robust curriculum and clearly defined content standards, including those validated by industry, to ensure instructors are equipped with both academic and technical competencies. Third, ongoing professional development opportunities, including regular training sessions and access to graduate education programs, were viewed as critical for continued instructional growth. Finally, access to adequate resources and tools, such as updated teaching materials, relevant technologies, and classroom equipment, was considered fundamental to instructor preparedness.

When asked what content should be included in CTE teacher training programs, one respondent powerfully summarized the collective view by stating that “all of them listed as an option” should be included. Participants collectively supported a comprehensive approach to teacher preparation, advocating for coverage of foundational knowledge of CTE, an overview of the field, its historical development, and its evolving landscape, including career pathways. Additional content areas deemed necessary included curriculum development, instructional

strategies, assessment practices, connections to industry, work-based learning, classroom management, professional development, diversity, equity, and inclusion, as well as educational policies and regulations.

Conclusion

Based on the findings, it can be concluded that while Indiana's CTE teacher training programs have made progress in preparing instructors for the classroom, significant gaps remain. Developing strong teaching skills remains essential for cultivating highly effective educators who can engage and support students from diverse backgrounds. The mixed research results, particularly the inconsistencies in perceptions of best practices, training content, and contributing factors, highlight the need for greater standardization across CTE teacher training programs. Addressing these gaps will improve the preparation of CTE instructors and help ensure that students receive a high-quality education that equips them for success in the workforce.

Recommendations

Based on the findings, several recommendations can be made to strengthen Indiana’s CTE teacher training programs. First, CTE programs should focus on comprehensive content development. Pedagogical training must include effective teaching strategies, lesson planning, classroom management, and assessment techniques that are tailored to specific career and technical subject areas. Ensuring instructors are fully prepared to teach content-specific skills will improve instructional quality across CTE classrooms.

Second, strong industry partnerships should continue to be emphasized. Indiana should maintain its requirement for advisory boards for each local career program. These partnerships between secondary career centers, high schools, and regional industries or businesses can provide instructors with meaningful training opportunities that align with real-world demands. In

addition, networking with local employers to offer internships, mentorships, and professional development opportunities can further enhance instructors' teaching capabilities and industry relevance.

Third, Indiana should continue to implement standardized guidelines for CTE teacher preparation through its teacher licensing board. Uniform standards ensure consistent instructional quality across programs and support accountability in how instructors are trained and licensed statewide.

Fourth, ongoing professional development must remain a priority. Secondary career centers and high schools should offer continuous opportunities, such as workshops and conferences, to promote lifelong learning among CTE instructors. This will help instructors stay current with evolving industry practices and instructional strategies.

Fifth, Indiana should expand the use of structured feedback and evaluation tools. Regular evaluation of CTE teacher training programs provides valuable insight into areas of strength and weakness. Feedback surveys completed by instructors should specifically address best practices, training content, and contributing factors that influence program satisfaction and effectiveness. These evaluations can be used to make data-informed improvements to training design and delivery.

Finally, Indiana should explore ways to train Workplace Specialists before they enter the classroom. The Indiana State CTE Department, in collaboration with Indiana's Higher Learning Division, should research how other states structure their CTE teacher preparation programs and analyze the success of those models. For instance, as discussed in Chapter II, New York's "Success Via Apprenticeship Program" recruits CTE graduates directly from high school and

prepares them through a structured combination of teacher training and work experience, in exchange for a commitment to teach for a specified number of years.

By implementing these recommendations, Indiana's secondary career centers and high schools will be better equipped to prepare CTE instructors for success in the classroom. These improvements will ultimately benefit instructors, students, and the broader workforce by producing well-trained educators and graduates who are career ready. In turn, this will support the needs of Indiana's industries and contribute to the continued growth of the state's economy.

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Appendix A

Teacher Shortage Continues in Indiana

Teacher shortage continues in Indiana

By Sue Loughlin | Tribune-Star

Jan 3, 2023

Nearly 95% of Indiana school superintendents who responded to a recent survey say they are contending with a shortage of qualified candidates for teacher openings.

Mirroring past survey results, the greatest shortage areas continue to be special education, science, math, English, foreign language and elementary education.

Districts continue to respond to the shortage through emergency permits, use of teachers outside their licensed areas and full-time substitutes.

The survey was done by Equitable Education Solutions, a private consulting firm.

Terry McDaniel, Indiana State University professor emeritus of education, used to conduct the study but in 2022 turned it over to the consulting group, with whom he does some work. The survey was administered in September.

"It is obvious we are not really solving the problem of the teacher shortage," McDaniel said. "We are not attracting new teachers to teaching."

He added, "It is so much more than throwing money at them to enter teaching, even though they are grossly underpaid. Many four-year bachelor degree grads make nearly twice as much as the $40,000 beginning salary," McDaniel said.

"Teachers need to feel appreciated, wanted, and a part of the community. Happy teachers [who have job satisfaction] are the ones who stay. Teaching should once again be an honored profession."

With the 2023 session of the General Assembly about to begin, the Indiana State Teachers Association says its top priority is addressing the teacher shortage crisis; increasing public school funding and improving teacher compensation is central to that effort, it says.

The teacher shortage survey was sent to all 291 traditional public school superintendents in Indiana, which resulted in 176 responses, or 60.5%.

Results show:

• Close to 95% of superintendent respondents indicate a shortage of qualified candidates for certified positions. While slightly less than the 96.5% reported last year, "It is overall very similar to the experienced shortages reported starting in 2015" with the first administration of the survey.

• Eighty percent indicated shortages in special education; 60% had shortages in science and 58% reported shortages in math.

Shortages in math and science are especially problematic, given the governor's emphasis on STEM fields as part of workforce development initiatives, said Michael Langevin, founder and CEO of Equitable Education Solutions. Meeting those workforce needs "is really hard to do when you don't have certified science and math teachers to fill your positions."

• In other findings, almost 91% of surveyed superintendents used emergency permits, and of those who did, nearly 33% of the school leaders said they needed at least six teachers emergency permitted staff to fill open vacancies.

"Given the significant number of respondents from rural settings [65%] with corporation enrollments below 2,500 [62.5%], requiring six or more emergency permitted staff is impactful," the survey report states.

• Just over half of respondents, 55.1%, indicated the use of teachers outside their licensed areas to address the shortage. Of those using teachers outside their fields, nearly 22% had five or more teachers outside of their licensed areas.

Of those using teachers outside their licensed areas, nearly 22% had five or more teachers outside of their licensed areas.

• In another finding, 37.5% of respondents indicated they were using full-time substitutes for teaching positions, and of those, 22.6% used four or more full-time substitutes.

A final question examines the reasoning Indiana teachers left their existing teaching position, and superintendents could mark multiple reasons. Among the reasons: 87.5% said teachers left the teaching profession for another career; 76.2% left due to retirement; 67.3% were recruited by another district; 57% could not handle the stress of teaching; 54.8% moved; 54.2% had burnout; 43.5% left because their salary was not competitive with other school districts. Other reasons were listed as well.

The report suggested while it is "tragic" to have a shortage because people don't enter the profession, it is "altogether catastrophic that teachers who are already doing the work, appropriately certified, are choosing to leave the profession. This demonstrates that the Indiana teacher shortage problem will not be solved with better recruiting efforts alone; strategies to retain existing teachers are equally important."

The report includes measures taken by the Legislature and Indiana Department of Education to address the shortage. It also offers four "focus points" to assist districts with teacher recruitment and retention, which are as follows:

• Show teachers what you are all about.

That would include evaluating a district's online presence. "In this digital age, the first impression candidates will most likely have of your school is your online messaging," it states. "The district needs to promote a clear, public message about what you value and prioritize."

The district's strategic plan for ongoing improvement is an additional tool in communicating its long-term vision and increasing its appeal to potential new hires. "Employees want to be a part of an organization that is progressive and innovative."

• Open new pipelines.

The report suggests seeking professionals in the community who might be interested in a Transition to Teaching license. Schools might consider current instructional aides or substitutes as candidates for continuing or alternative education. It also suggests implementing an educator pathway for high school students and leveraging relationships with higher education institutions.

• Create incentives to teach in your district.

"With the teacher shortage crisis at hand, offering competitive financial incentives is essential to attracting and retaining qualified teachers," it says. Providing opportunities to advance as a professional is also important.

• Create the environment they don't want to leave.

That would include good working conditions, administrative support, professional development, mentoring and positive, encouraging feedback.

Appendix B

First- and Second-Year CTE Instructor Survey

Indiana CTE Teacher Training Program: Are They Preparing CTE Instructors for the Classroom?

Note: SurveyMonkey will be used to create the survey and gather data from Indiana's first- and second-year CTE instructor survey participants. According to AI, survey experts recommend it and consider it the best program for creating online surveys due to its wide range of features, user-friendly interface, and popularity across various user types.

Survey Information--

Participation: For completing the survey, you will receive a $10 Amazon gift card.

Purpose – This study aims to identify best practices and contributing factors for Indiana's CTE teacher training program, which prepares highly skilled CTE instructors for the classroom. It will also identify to what extent graduates are satisfied with the program and feel prepared for the classroom. The results can be used to inform leaders, administrators, and policymakers of Indiana's state teacher preparation programs.

Confidentiality – The data collected in this study are entirely anonymous. No personally identifiable information will be collected, and the information you choose to provide in this study cannot be connected to you.

Time Commitment – Completing the survey will take approximately 10 minutes.

Contact Information – Douglas Coats, a Graduate Student at the University of Wisconsin—Stout. Email – coatsd1492@my.uwstout.edu or call 317-430-2107 with any questions, concerns, or technical assistance that may be needed.

Directions:

To complete this online survey, please read each question carefully and select the answer or answers that best reflect your opinion by clicking the corresponding option or options. Please answer all questions to the best of your ability and submit the survey when finished. Important considerations:

- **Be honest:** Your responses are confidential and will only be used for research.
- **Read instructions carefully:** Please follow specific instructions for each question.
- **Do not rush:** Take your time to consider each question before responding.
- **If unsure, choose the option that best fits your situation**.

Your participation is greatly appreciated and is highly needed.

Questions:

What is the level of your CTE teacher training? (Select only one answer.)

Associate degree

Bachelor's Degree

Master's Degree

Graduate Degree (Specialist or Doctorate)

Conference/Workshop Training

Work Experience

No Training

Where is your CTE program located? (Select only one answer.)

Career Center

High School

Other

What is the CTE program area you are teaching? (Select only one answer.)

Vocational Training: Programs that teach specific trades such as plumbing, electrical work, carpentry, automotive technology, and welding.

Health Sciences: Courses related to healthcare careers, including nursing assistant programs, medical terminology, and emergency medical response (EMR).

Culinary Arts: Training in cooking, baking, food safety, and restaurant management.

Information Technology: Programs focused on computer science, programming, and cybersecurity.

Business and Marketing: Courses on entrepreneurship, marketing, business management, and finance.

Hospitality Management: Training in hotel management, event planning, and customer service.

Arts and Communications: Programs in graphic design, film production, photography, and digital media, such as web design.

Construction Technology: Skills for various construction-related careers, including design and project management.

Cosmetology/Barbering and Personal Care: Training for hairstyling, esthetics, and nail technology careers.

Automotive Technology: Courses related to vehicle maintenance, repair, and diagnostics.

Environmental Science and Sustainability: Programs focusing on green technologies, conservation, and sustainability practices.

Manufacturing Technology: Training in machining, fabrication, production processes, and robotics.

Aviation: Airplane maintenance and flying.

Internships and Work-Study Programs: Opportunities for students to gain practical experience in their field of interest through real-world job placements.

Other

Did you receive CTE teacher training before entering the classroom? **(Select one answer.)**

Yes or No

Have you received CTE teacher training during the school year? **(Select one answer.)**

Yes or No

If yes to questions one and/or two, were you satisfied as a first- and second-year CTE instructor with the CTE teacher training program you received? (Select one answer.)

Yes or No

At what level were you satisfied as a first- and second-year CTE instructor with the CTE teacher training program you received? (Select one answer.)

1 – Greatly Dissatisfied, 2 - Dissatisfied, 3 – Neutral, 4 – Satisfied, 5 – Highly Satisfied

Did the CTE teacher training program help prepare you for the classroom? Note: If you received no CTE teacher training, select no. (Select one answer.)

Yes or No

When should a First- and Second-Year CTE instructor receive teacher training? (Select one answer.)

Before entering the classroom

During the school year

Both

What are the best practices used in CTE teacher training programs? (Select all that apply.)

Aligning training with industry/business standards through industrial/business partnerships and certifications.

Focus on pedagogy and curriculum by discussing, demonstrating, and sharing teacher strategies and curriculum development examples.

Integrate hands-on learning experiences with teachers receiving and participating in industry- or business-based work experiences.

Receiving ongoing professional development opportunities such as workshops, conferences, seminars, and mentorships.

Emphasizing communication, collaboration, and professionalism.

Incorporating technology by sharing and demonstrating EdTech tools relevant to industry/business.

Fostering a culture of inclusivity by discussing diverse learning needs and incorporating culture-relevant materials and teaching practices.

Encouraging and discussing collaboration and networking, including professional learning communities and advisory boards.

Discussing and providing examples of various assessments, including testing, student feedback, and peer review.

Focusing on and discussing career guidance so that CTE instructors can effectively guide students through career choices and pathways.

Other

Other

What content should be covered in a CTE teacher training program? (Select all that apply.)

Foundational Knowledge of CTE:

Overview of CTE: Definition, importance, and impact on workforce development.

History and evolution of CTE in education.

Understanding the CTE landscape: Programs of study, pathways, and industry partnerships.

Curriculum Development

Designing CTE curricula that align with industry standards and competencies.

Integrating academic and technical skills into CTE programs.

Incorporating project-based learning, real-world applications, and experiential learning opportunities.

Instructional Strategies

Active learning and engagement strategies tailored to diverse learners.

Differentiated instruction techniques for varying skill levels and abilities.

Integrating technology in the classroom, including online learning tools and simulations.

Assessment and Evaluation

Creating and implementing assessments that measure student learning and skill acquisition.

Methods for evaluating program effectiveness and student outcomes.

Incorporating industry-recognized certifications and assessments where applicable.

Industry Connections

Building and maintaining partnerships with local industries and organizations.

Understanding labor market trends and aligning CTE programs with workforce needs.

Engaging guest speakers, internships, and site visits as part of the curriculum.

Work-Based Learning

Design and implement work-based learning experiences (e.g., internships, apprenticeships).

Legal and Ethical Considerations in Student Placements.

Reflection and evaluation of work-based learning activities.

Classroom Management and Student Engagement

Techniques for managing diverse classrooms and promoting a positive learning environment.

Strategies for fostering student agency and ownership of learning.

Understanding and addressing the needs of at-risk and underrepresented students.

Professional Development and Lifelong Learning

Encouraging ongoing professional growth and involvement in CTE organizations.

Staying current with industry trends, technology, and teaching methodologies.

Reflection and Self-Assessment Practices for Continuous Improvement.

Diversity, Equity, and Inclusion

Understanding Cultural Competence and Creating Inclusive Learning Environments

Strategies to promote equity in CTE education.

Addressing barriers to access and success for marginalized populations in CTE.

Educational Policies and Regulations

Familiarity with federal, state, and local educational policies impacting CTE (e.g., Perkins Act).

Understanding funding sources, grant writing, and resource allocation for CTE programs.

Compliance with safety standards, labor laws, and educational regulations.

Instructional Technology

Using technology to enhance teaching and learning in CTE.

Familiarity with specific tools and platforms relevant to CTE fields.

Integrating digital literacy into CTE curricula.

Capstone Project or Practicum

A practical application of learned concepts, potentially culminating in a project or teaching demonstration.

Opportunities for peer feedback and reflection on practice.

Other

Other

What are the contributing factors needed for CTE teacher training programs? (Select all that apply.)

Strong industry/business partnerships, including advisory boards and collaboration with local businesses.

Robust curriculum and content standards, including industry-validated curriculum and academic and technical skills integration.

Professional development opportunities that include ongoing training and graduate education programs.

Access to resources and tools, including teaching materials, technology, and equipment.

Mentoring and support systems, such as mentorship programs and peer collaboration.

Assessments and evaluation mechanisms, such as performance metrics and feedback.

Employability skills (soft skills) include training in interpersonal skills and professional development counseling.

Inclusivity and diversity training encompass culturally responsive teaching practices, addressing special populations, and ensuring accessibility.

Administrative support and policies that include institutional commitment, funding, and resources. This includes legislation, general budgeting, and Perkins funds.

Innovation and adaptability with emphasis on continuous improvement and responsiveness to change.

Other

Other

What best prepares CTE instructors for the classroom? (Select only one answer.)

Traditional training (bachelor's degree)

Work experience with teacher training from professional development workshops.

Both

Other

Would you be willing to participate in a one-hour focus group session to review the questionnaire and answer the following questions?

1. What are the best practices of CTE teacher training programs in Indiana that prepare CTE instructors for the classroom?
2. To what extent are CTE instructors satisfied with the teacher preparation training program they received in Indiana?
3. What contributing factors best prepare Indiana CTE instructors to succeed in the classroom?

Thank you for your time and assistance. As a token of my appreciation, I will send you a $10 Amazon gift card.

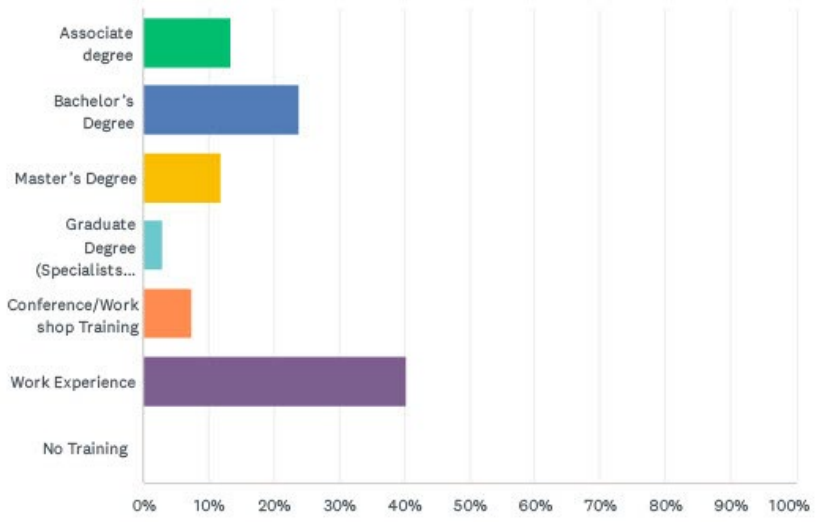
Please submit answers.

Appendix C

CTE Teacher Training Level

Q1 What is the level of your CTE teacher training? (Select only one answer.)

Answered: 67 Skipped: 1



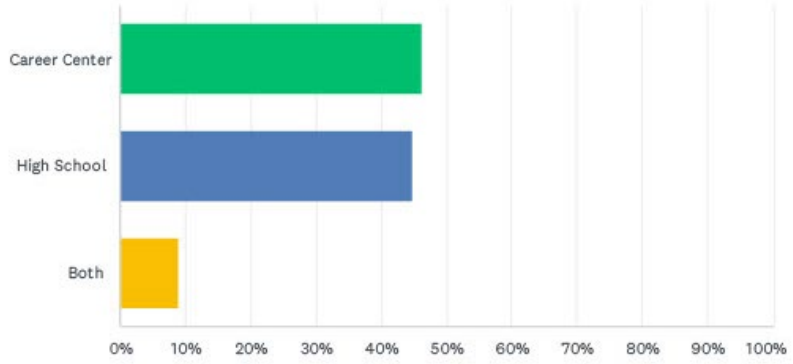
ANSWER CHOICES	RESPONSES	
Associate degree	13.43%	9
Bachelor's Degree	23.88%	16
Master's Degree	11.94%	8
Graduate Degree (Specialists or Doctorate)	2.99%	2
Conference/Workshop Training	7.46%	5
Work Experience	40.30%	27
No Training	0.00%	0
TOTAL		67

Appendix D

CTE Program Location

Q2 Where is your CTE program located? (Select only one answer.)

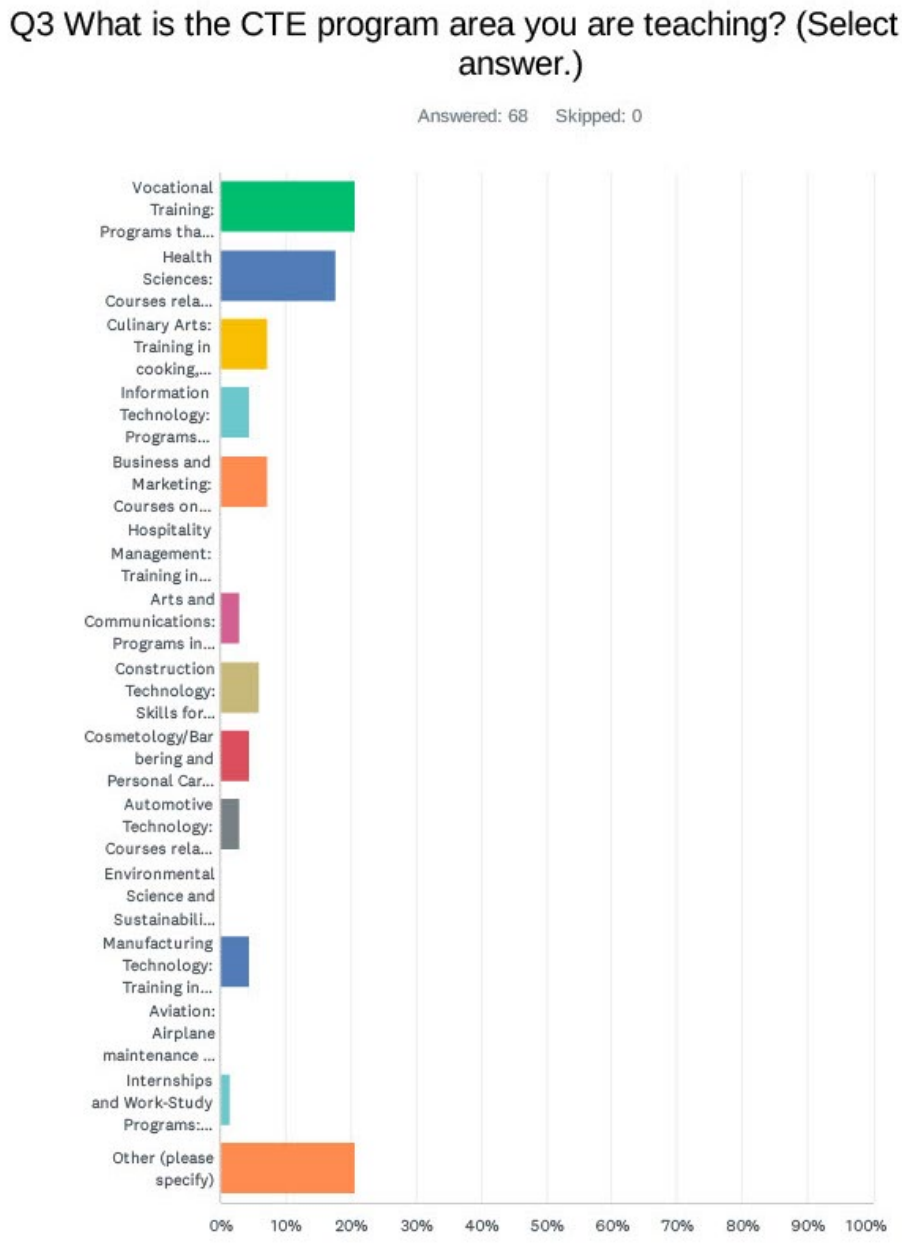
Answered: 67 Skipped: 1



ANSWER CHOICES	RESPONSES	
Career Center	46.27%	31
High School	44.78%	30
Both	8.96%	6
TOTAL		67

Appendix E

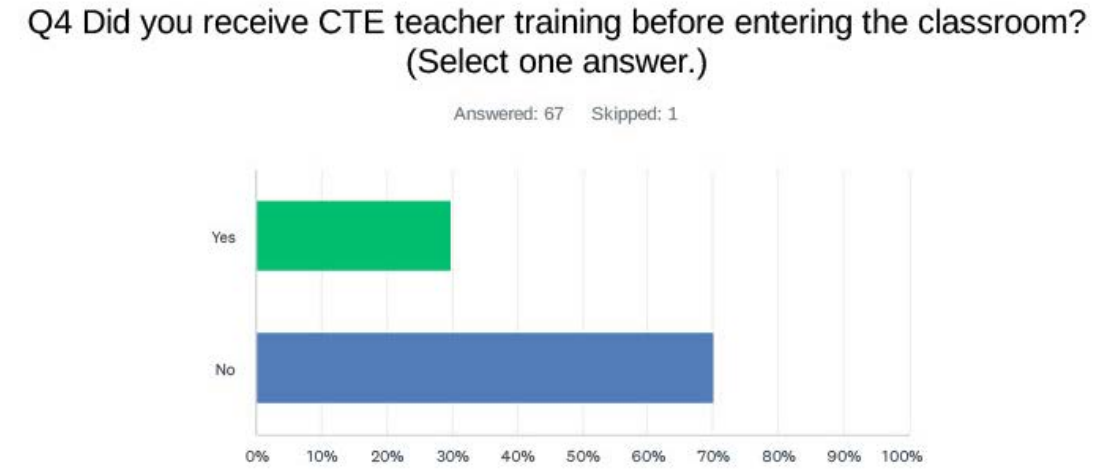
CTE Program Name



ANSWER CHOICES	RESPONSES	
Vocational Training: Programs that teach specific trades such as plumbing, electrical work, carpentry, automotive technology, and welding.	20.59%	14
Health Sciences: Courses related to healthcare careers, including nursing assistant programs, medical terminology, and emergency medical response (EMR).	17.65%	12
Culinary Arts: Training in cooking, baking, food safety, and restaurant management.	7.35%	5
Information Technology: Programs focused on computer science, programming, and cybersecurity.	4.41%	3
Business and Marketing: Courses on entrepreneurship, marketing, business management, and finance.	7.35%	5
Hospitality Management: Training in hotel management, event planning, and customer service.	0.00%	0
Arts and Communications: Programs in graphic design, film production, photography, and digital media such as web design.	2.94%	2
Construction Technology: Skills for various construction-related careers, including design and project management.	5.88%	4
Cosmetology/Barbering and Personal Care: Training for hairstyling, esthetics, and nail technology careers.	4.41%	3
Automotive Technology: Courses related to vehicle maintenance, repair, and diagnostics.	2.94%	2
Environmental Science and Sustainability: Programs focusing on green technologies, conservation, and sustainability practices.	0.00%	0
Manufacturing Technology: Training in machining, fabrication, production processes, and robotics.	4.41%	3
Aviation: Airplane maintenance and flying.	0.00%	0
Internships and Work-Study Programs: Opportunities for students to gain practical experience in their field of interest through real-world job placements.	1.47%	1
Other (please specify)	20.59%	14
TOTAL		68

Appendix F

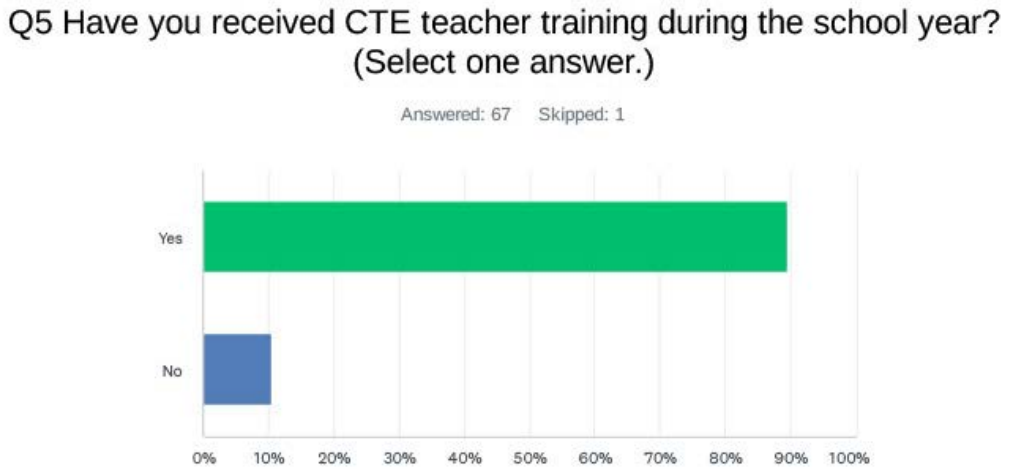
Received Training Before Entering the Classroom?



ANSWER CHOICES	RESPONSES	
Yes	29.85%	20
No	70.15%	47
TOTAL		67

Appendix G

Received Training During School Year



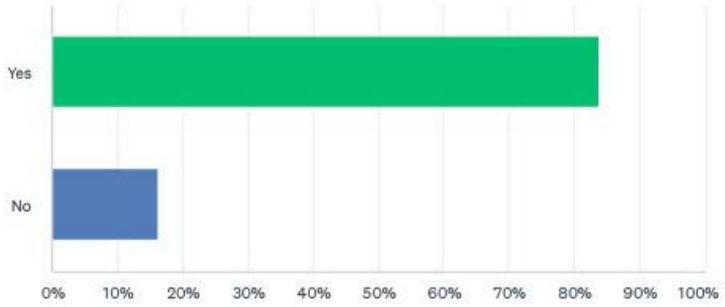
ANSWER CHOICES	RESPONSES	
Yes	89.55%	60
No	10.45%	7
TOTAL		67

Appendix H

Satisfied with Teacher Training Received

Q6 Are you satisfied as a first-year or second-year CTE instructor with the CTE teacher training program you received? (Select one answer.)

Answered: 68 Skipped: 0



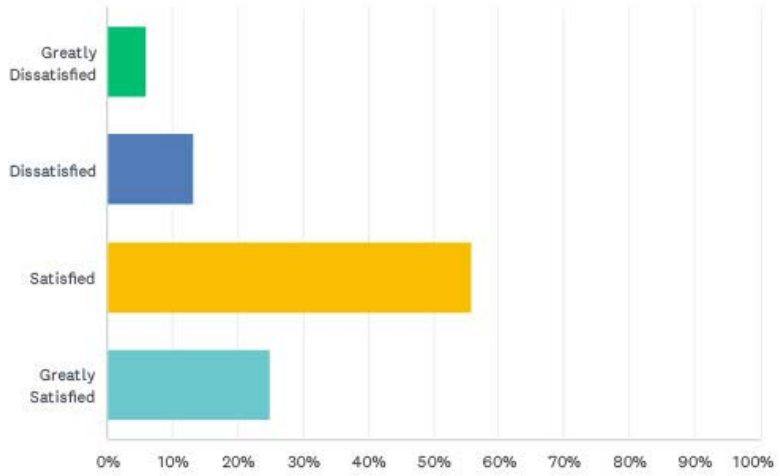
ANSWER CHOICES	RESPONSES	
Yes	83.82%	57
No	16.18%	11
TOTAL		68

Appendix I

Satisfaction with Teacher Training Level

Q7 At what level were you satisfied as a first- and second-year CTE instructor with the CTE teacher training program you received? (Select one answer.)

Answered: 68 Skipped: 0



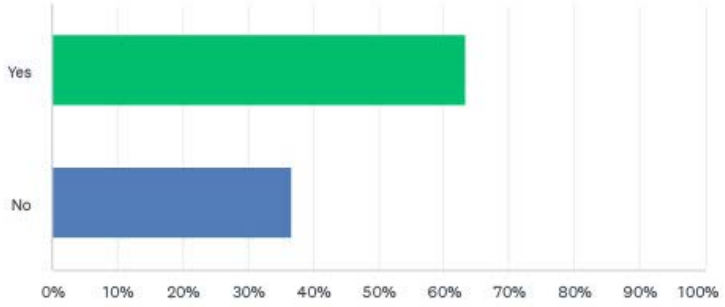
ANSWER CHOICES	RESPONSES	
Greatly Dissatisfied	5.88%	4
Dissatisfied	13.24%	9
Satisfied	55.88%	38
Greatly Satisfied	25.00%	17
TOTAL		68

Appendix J

CTE Teacher Training Program: Prepare for the Classroom

Q8 Did the CTE teacher training program help prepare you for the classroom? Note: If you received no CTE teacher training, select no. (Select one answer.)

Answered: 68 Skipped: 0



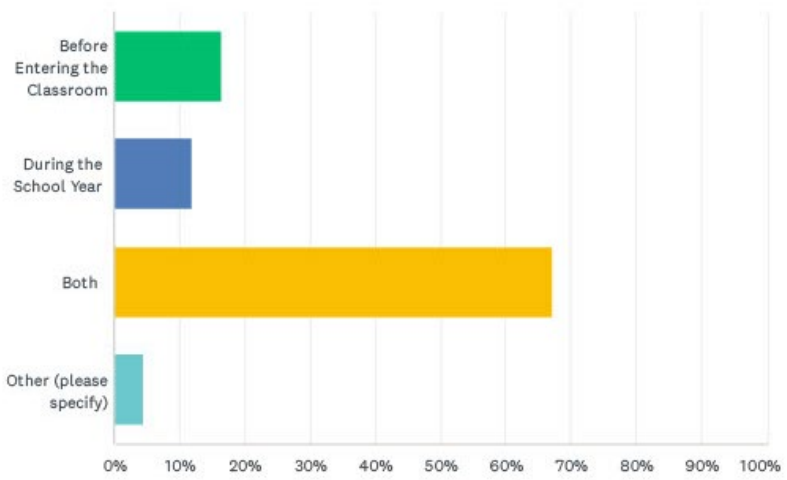
ANSWER CHOICES	RESPONSES	
Yes	63.24%	43
No	36.76%	25
TOTAL		68

Appendix K

When CTE Instructor Receive Training

Q9 When should a First-Year CTE instructor receive teacher training? (Select one answer.)

Answered: 67 Skipped: 1



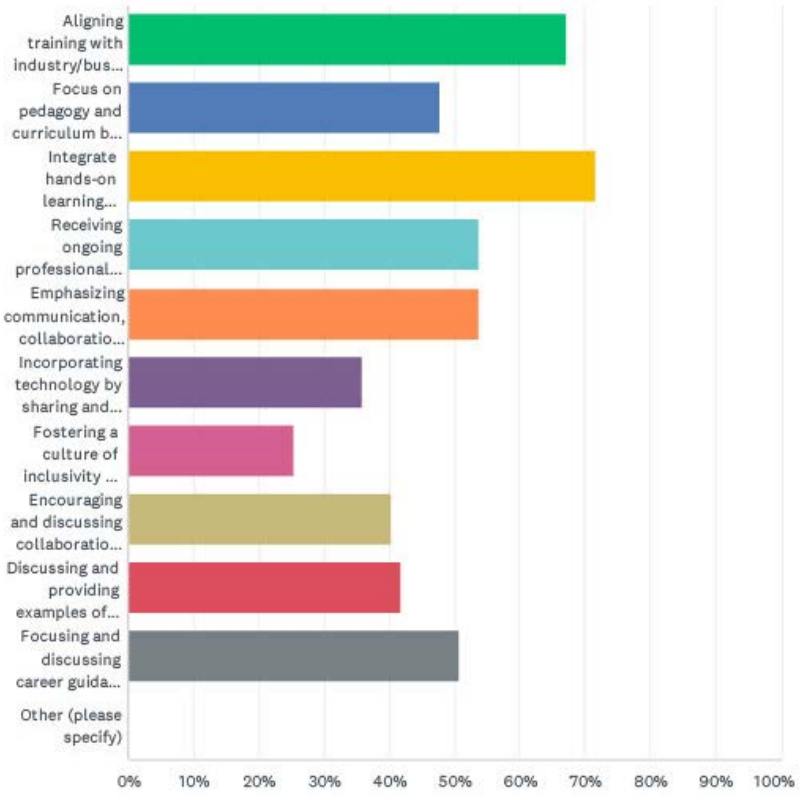
ANSWER CHOICES	RESPONSES	
Before Entering the Classroom	16.42%	11
During the School Year	11.94%	8
Both	67.16%	45
Other (please specify)	4.48%	3
TOTAL		67

Appendix L

Best Practices

Q10 What are the best practices used in CTE teacher training programs? (Select all that apply.)

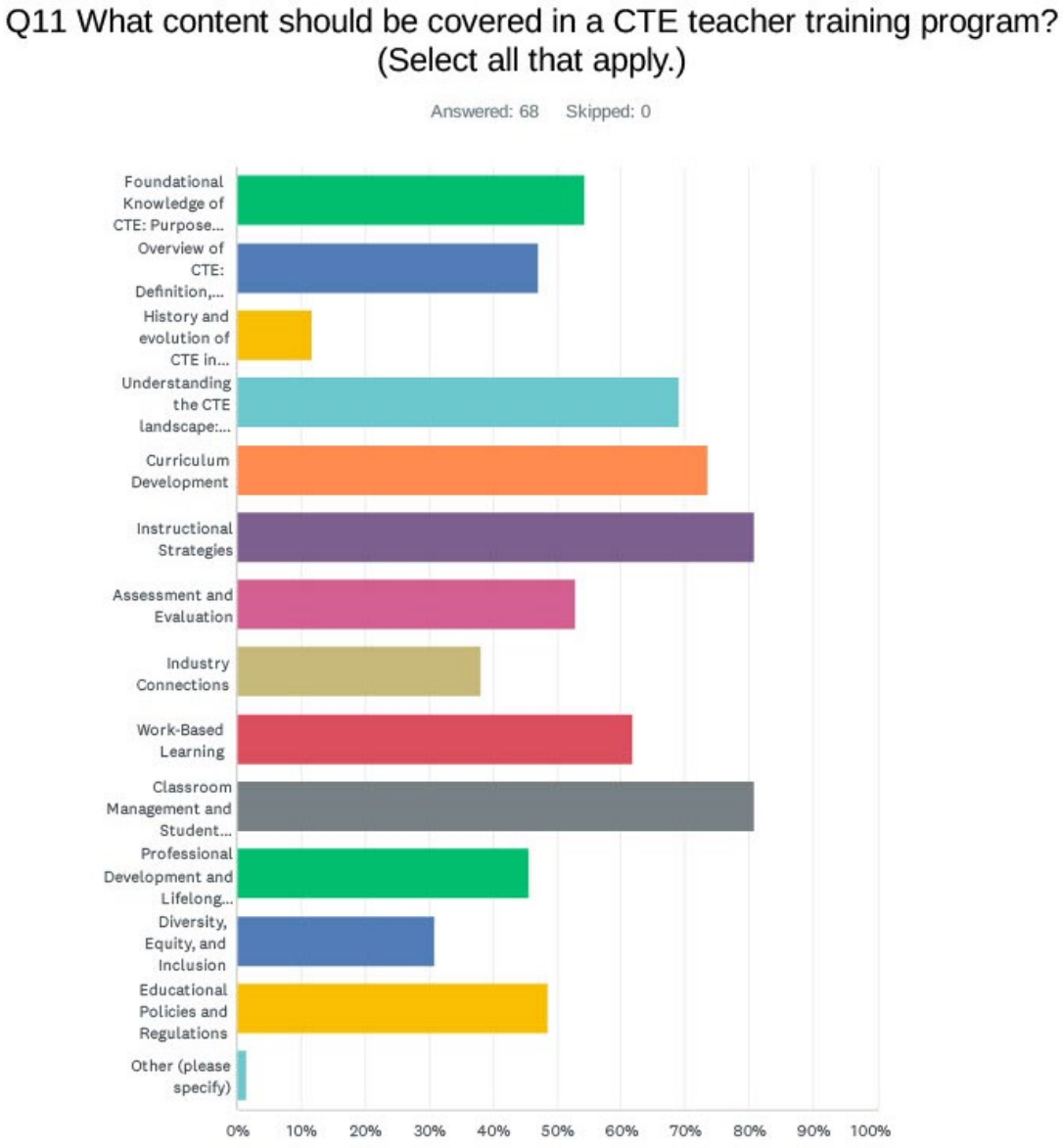
Answered: 67 Skipped: 1



ANSWER CHOICES	RESPONSES	
Aligning training with industry/business standards through industrial/business partnerships and certifications.	67.16%	45
Focus on pedagogy and curriculum by discussing, demonstrating, and sharing teacher strategies and curriculum development examples.	47.76%	32
Integrate hands-on learning experiences with teachers receiving and participating in industry/business, work-based learning experiences.	71.64%	48
Receiving ongoing professional development opportunities such as workshops, conferences, seminars, and mentorships.	53.73%	36
Emphasizing communication, collaboration, and professionalism.	53.73%	36
Incorporating technology by sharing and demonstrating EdTech tools relevant to industry/business.	35.82%	24
Fostering a culture of inclusivity by discussing diverse learning needs and incorporating culture-relevant materials and teaching practices.	25.37%	17
Encouraging and discussing collaboration and networking, including professional learning communities and advisory boards.	40.30%	27
Discussing and providing examples of various assessments, including testing, student feedback and peer review.	41.79%	28
Focusing and discussing career guidance so CTE instructors can guide students on career choices and pathways.	50.75%	34
Other (please specify)	0.00%	0
Total Respondents: 67		

Appendix M

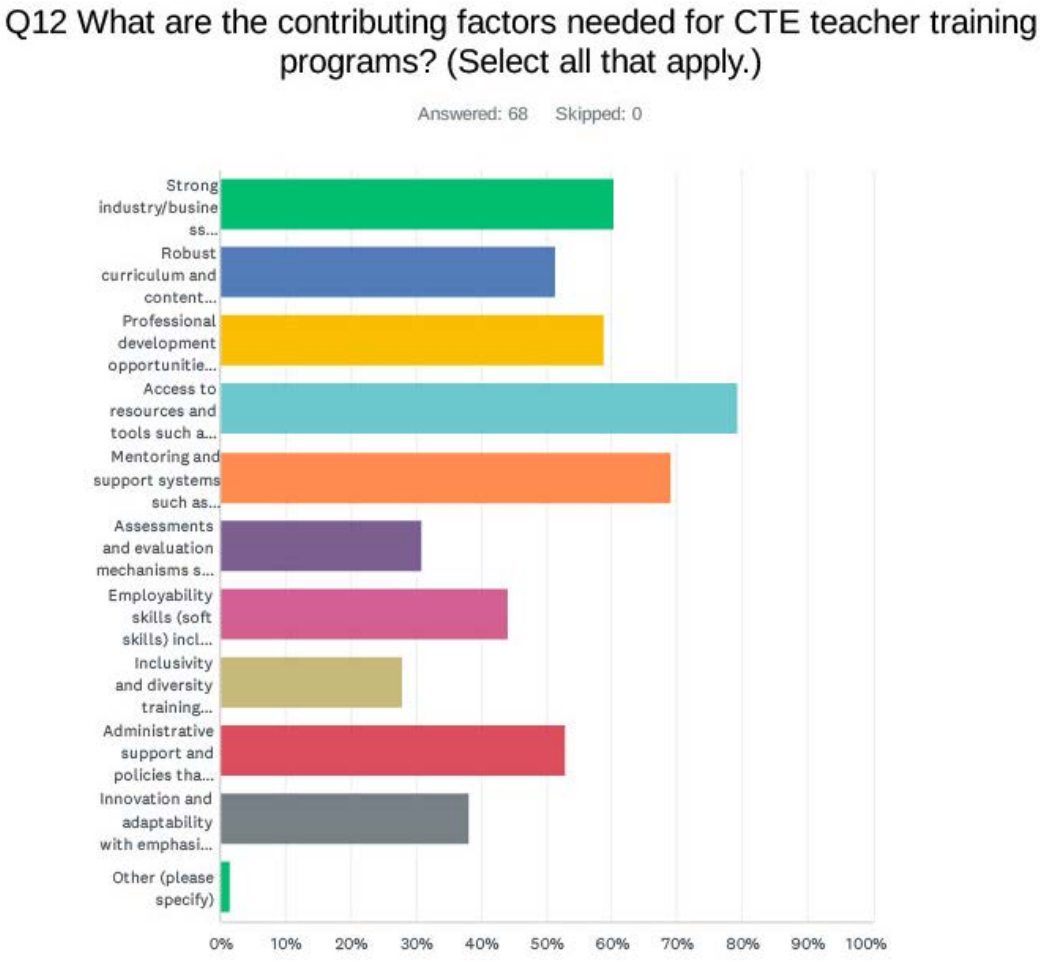
Required Content



ANSWER CHOICES	RESPONSES	
Foundational Knowledge of CTE: Purpose and design of CTE programs.	54.41%	37
Overview of CTE: Definition, importance, and impact on workforce development.	47.06%	32
History and evolution of CTE in education.	11.76%	8
Understanding the CTE landscape: Programs of study, pathways, and industry partnerships.	69.12%	47
Curriculum Development	73.53%	50
Instructional Strategies	80.88%	55
Assessment and Evaluation	52.94%	36
Industry Connections	38.24%	26
Work-Based Learning	61.76%	42
Classroom Management and Student Engagement	80.88%	55
Professional Development and Lifelong Learning	45.59%	31
Diversity, Equity, and Inclusion	30.88%	21
Educational Policies and Regulations	48.53%	33
Other (please specify)	1.47%	1
Total Respondents: 68		

Appendix N

Contributing Factors



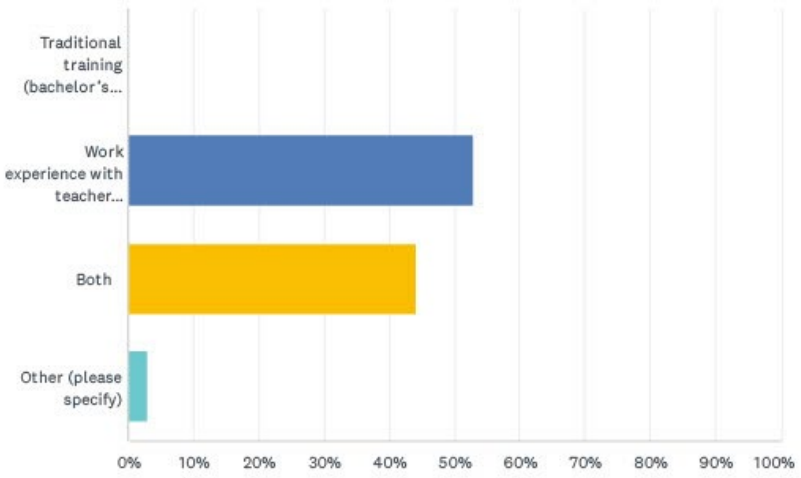
ANSWER CHOICES	RESPONSES	
Strong industry/business partnerships, including advisory boards and collaboration with local businesses.	60.29%	41
Robust curriculum and content standards, including industry-validated curriculum and academic and technical skills integration.	51.47%	35
Professional development opportunities that include ongoing training and graduate education programs.	58.82%	40
Access to resources and tools such as teaching materials, technology, and equipment.	79.41%	54
Mentoring and support systems such as mentorship programs and peer collaboration.	69.12%	47
Assessments and evaluation mechanisms such as performance metrics and feedback.	30.88%	21
Employability skills (soft skills) include training in interpersonal skills and professional development counseling.	44.12%	30
Inclusivity and diversity training include culturally responsive teaching practices, special populations, and accessibility.	27.94%	19
Administrative support and policies that include institutional commitment, funding, and resources. This includes legislation, general budgeting, and Perkins funds.	52.94%	36
Innovation and adaptability with emphasis on continuous improvement and responsiveness to change.	38.24%	26
Other (please specify)	1.47%	1
Total Respondents: 68		

Appendix O

What Best Prepares for the Classroom

Q13 What best prepares CTE instructors for the classroom? (Select only one answer.)

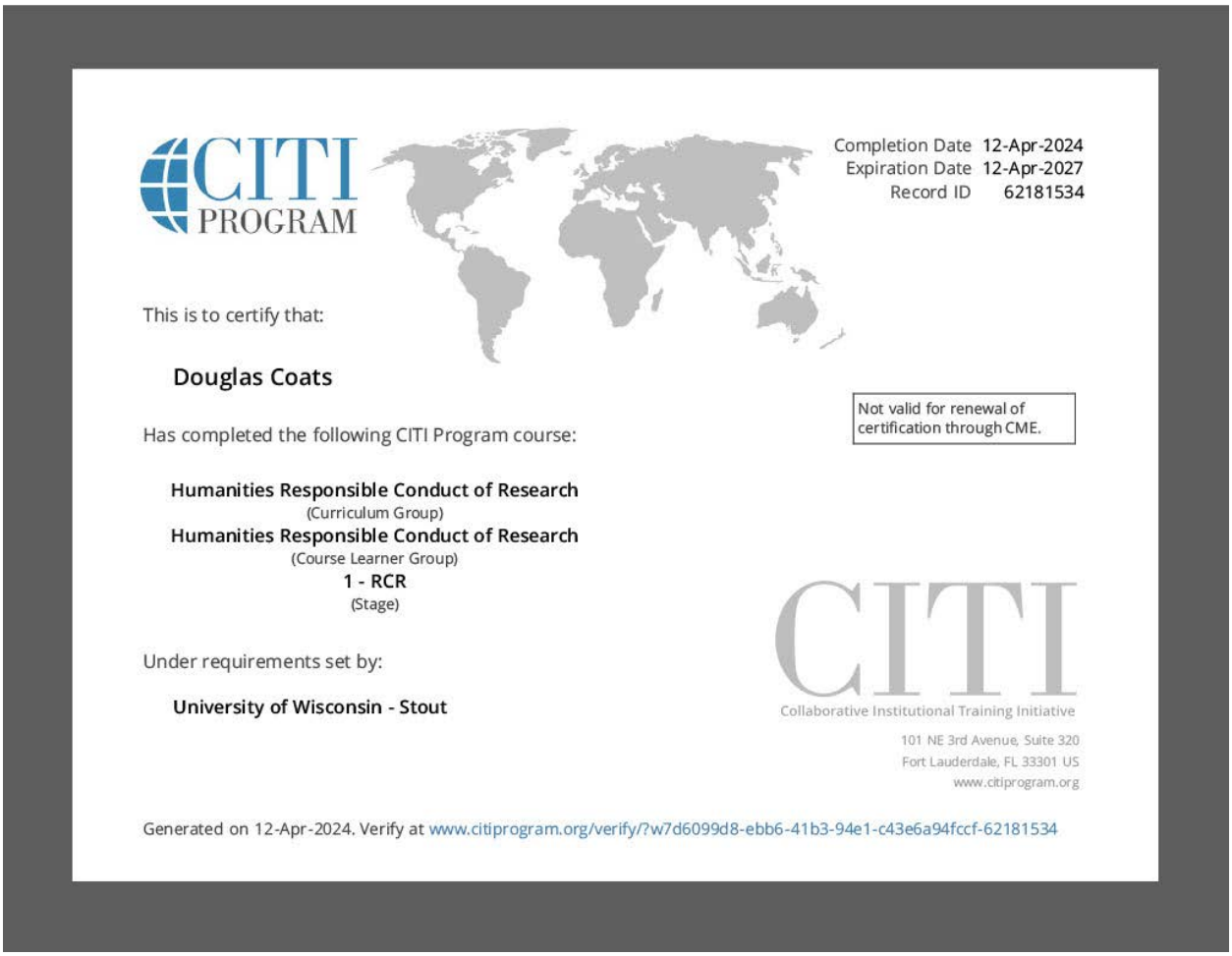
Answered: 68 Skipped: 0



ANSWER CHOICES	RESPONSES	
Traditional training (bachelor's degree)	0.00%	0
Work experience with teacher training from professional development workshops.	52.94%	36
Both	44.12%	30
Other (please specify)	2.94%	2
TOTAL		68

Appendix P

IRB Approval



CITI PROGRAM

Completion Date 12-Apr-2024
Expiration Date 12-Apr-2027
Record ID 62181534

This is to certify that:

Douglas Coats

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Humanities Responsible Conduct of Research
(Curriculum Group)
Humanities Responsible Conduct of Research
(Course Learner Group)
1 - RCR
(Stage)

Under requirements set by:

University of Wisconsin - Stout

CITI
Collaborative Institutional Training Initiative
101 NE 3rd Avenue, Suite 320
Fort Lauderdale, FL 33301 US
www.citiprogram.org

Generated on 12-Apr-2024. Verify at www.citiprogram.org/verify/?w7d6099d8-ebb6-41b3-94e1-c43e6a94fccf-62181534

Outlook

IRB-FY2026-2 - Initial: Approved as Exempt

From do-not-reply@cayuse.com <do-not-reply@cayuse.com>
Date Tue 7/8/2025 11:44 AM
To Coats, Douglas <coatsd1492@my.uwstout.edu>; Simoneau, Matthew <simoneaum@uwstout.edu>

University of Wisconsin-Stout
Wisconsin's Polytechnic University

INSTITUTIONAL REVIEW BOARD
Office of Research and Sponsored Programs
Robert S. Swanson Learning Center #201
715-232-4042
irb@uwstout.edu

Date: July 8, 2025

PI: Douglas Coats

Department: TEACHING LEARNING & LEADERSHIP, GRADUATE STUDENT

Re: Initial - IRB-FY2026-2

Indiana CTE Teacher Training Program: Is it Preparing CTE Instructors for the Classroom?

Dear Douglas Coats,

In accordance with Federal regulations, your project, *Indiana CTE Teacher Training Program: Is it Preparing CTE Instructors for the Classroom?*, was reviewed by a member of the University of Wisconsin - Stout Institutional Review Board and was determined to be **Exempt** from full review under the below Categories in accordance with Federal Policy for the Protection of Human Subjects (45 CFR 46).

Category: Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects;

You project is hereby approved and deemed exempt from further IRB review for 5 years from July 8, 2025. If a renewal of this approval is needed, it is to be submitted at least 10 working days prior to the expiration date.

Responsibilities for Principal Investigators of UW-Stout IRB-approved research:

1. No subjects may be involved in any study procedure prior to the IRB approval date or after the expiration date.
2. All unanticipated or serious adverse events must be reported to the IRB.
3. All protocol modifications must be approved prior to implementation unless they are intended to reduce risk.
4. All protocol deviations must be reported to the IRB.
5. All recruitment materials and methods must be approved by the IRB prior to being used.
6. Research which involves financial compensation to participants must follow appropriate UW-Stout payment procedures.
7. Consent forms must adhere to UW-Stout IRB standards and indicate that the research has been approved by the UW-Stout IRB as required by federal regulations (see UW-Stout IRB consent form templates for more details).
8. Researchers conducting human subjects' research under an approved exempt category are still ethically bound to follow the basic ethical principles of the Belmont Report, as reflected in the practice of obtaining informed consent from participants and adherence to IRB approved methods.
9. Any modifications to the approved study must be submitted for review through Cayuse IRB. All approval letters and study documents are located within the Study Details in Cayuse IRB.

Thank you for your cooperation with the IRB and best wishes with your project. If you have questions, please contact the IRB office at irb@uwstout.edu or by phone 715-232-4042, and your question will be directed to the appropriate person.

Sincerely,

Michael Mensink, Ph.D.; IRB Chair
University of Wisconsin-Stout Institutional Review Board