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CTE Teacher Recruitment, Training, and Retention Toolkit

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CTE Teacher Recruitment, Training, and Retention Toolkit

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Overview

This toolkit is a collaborative effort of ECMC Foundations fellows across four US states (Florida, Kentucky, Nevada, and Tennessee) with experience in postsecondary and secondary CTE teacher education, training, and recruitment. Through this project, fellows will apply lessons learned and best practices to create a digital toolkit of practical and proven strategies for recruitment, training, and retention of quality postsecondary CTE teachers.

Research has shown that “quality teachers” are more likely to have successful student outcomes. Characteristics for a quality teacher include content knowledge, teacher experience, teacher education degrees, as well as professional development coursework such as equity in the classroom. Darling-Hammond’s (2000) study shows a significant relationship between teacher pedagogical education and successful student outcomes. Quality CTE teachers who completed professional education coursework in pedagogy have a significant relationship to equity in postsecondary CTE, as revealed in a study that analyzed international quality teaching practice evidence. The Grudnoff’s et al. (2017) study identified six “facets of practice for equity” principles to guide equity-centered teacher education curriculum.

Postsecondary CTE teachers differ from academic teachers in that they are occupation-based. Postsecondary CTE teachers are usually hired due to their industry experience and certifications rather than educational attainment or knowledge of teaching skills (pedagogy). However, a recent study of Florida’s postsecondary CTE teachers found a statistical significance between educational degree attainment and passing scores on industry certification exams (Martino, 2021). This study reveals that postsecondary CTE teachers with a formal education degree and strong pedagogical knowledge positively affect student learning outcomes. Furthermore, there is a critical need for quality CTE teachers across the U.S. in school districts, technical colleges, and community colleges. With a critical need, hiring out-of-field teachers has become a common practice, which may negatively affect student outcomes in the long term. It is imperative to address this issue and hire quality CTE teachers trained to teach their subject matter expertise from day one, not within the first three years of teaching, which is also common practice.

Purpose and Goal

This Toolkit provides you with information and resources from the U.S. States in the recruitment, preparation, and retention of quality postsecondary CTE teachers. Tips, strategies, and lessons learned are presented along with experiences with issues and challenges in equity. The goal of this toolkit is to promote equity in postsecondary CTE education across the United States by hiring and retaining quality CTE teachers.



Who Should Use This Toolkit?

CTE program coordinators, state department teacher certification staff, HR hiring specialists, administrators, supervisors, teacher educators, trainers, as well as any person or organization involved in the planning of CTE teacher recruitment, training, and retention should use this toolkit. This includes individuals from local schools, county districts, technical centers, vocational rehabilitation centers, state and community colleges, state agencies, or other institutions where CTE teachers work.

How To Use This Toolkit

The toolkit is categorized alphabetically by U.S. states. Each section includes information regarding how their state certifies, recruits, prepares, and retains secondary and postsecondary CTE teachers. The inclusion of secondary in this postsecondary-focused toolkit is deemed useful to see the similarities and differences between the two levels. The toolkit also includes lessons learned with respect to issues and challenges, equity issues, and recommendations to improve practice. Following the state sections, there is a bibliography section by state.

As you review the various state practices, you may identify new strategies and resources to improve your CTE teacher recruitment, training, and retention plan. Review the states' bibliography section, take notes, and transfer them into a Word or Excel document. This may be helpful to develop a plan of action.

State CTE Policy and Practices

FLORIDA

Contributor: Lisa Martino, PhD

Florida CTE Economy and Industry

Florida is unique, but not just because we are the Sunshine State and have the best oranges. We have the longest coastline in the contiguous U.S. with beaches measuring 825 miles bordering the Atlantic Ocean and the Gulf of Mexico. We have more golf courses than any other state, and of course, there's Central Florida with amazing theme parks. It's not just about leisure and vacations in Florida. As of 2019, there were 21,477,737 people living in the state, which makes it the third most populated in the country (United States Census, 2021). With that many people in Florida and no state tax, how does the economy measure up?

As of July 2021, Florida's economy moved up in rank from 17th largest in the world to 15th passing Mexico and Indonesia. This means that if Florida were a country, it would have the 15th largest economy in the world (Florida Chamber of Commerce, 2021). Supporting the economy are Florida's high-skilled CTE industries including aviation and aerospace, manufacturing, logistics and distribution, and clean technology (FLDOE, n.d.). Florida also differs from the U.S. in our 17 Career Cluster frameworks. In Florida, we have added Energy to the list of 16 national Career Clusters as proposed by AdvanceCTE (Florida Department of Education, 2021). How does all this information relate to Career and Technical Education?

Florida CTE Enrollment Status

In 2020, Florida received \$73,997,159 from the federal Perkins CTE funds (ACTE, 2021). In the 2019-2020 school year, there were a total of 486,570 enrolled CTE students in Florida in both secondary and postsecondary levels (AdvanceCTE, 2021a).

Secondary: In the 2019-2020 school year, according to AdvanceCTE, there were 334,193 high school students enrolled as CTE concentrators. Secondary CTE enrollment by gender was 48.3% female and 51.7% male. By race, enrollment included 39.6% White, 32.8% Hispanic, 21.3% Black, 3% more than two races, and 2.8% Asian. Among high school CTE concentrators, there was a 97% graduation rate. In addition, 82% of those students went on to enroll in postsecondary education (AdvanceCTE, 2021a).

Postsecondary: In the same school year, there were 179,112 postsecondary students enrolled in CTE programs within the 48 area technical colleges with over 9000 earned industry certificates. Employed CTE program completers was 74%. By gender, 53.5% were female and 46.5% were male. Race enrollment for postsecondary included 42.9% White, 30.4% Hispanic, 20.4% Black, 2.9% more than two races, and 2.8% Asian (AdvanceCTE, 2021a). This does not

include postsecondary CTE programs or courses offered through community colleges, state colleges, or other educational institutions.

Florida CTE Teacher Hiring Practices

CTE Teacher Salaries

According to the Bureau of Labor Statistics' Occupational Outlook Handbook, career and technical education teachers earned a median salary of \$59,140 per year across the nation. In Florida, annual mean wage for secondary CTE teachers as of May 2021 was \$67,970; for postsecondary CTE teachers, it was \$59,660 (U.S. Bureau of Labor Statistics, 2022). Although Florida's median salary is slightly above the nation's average, the job outlook is only 5%, which is slower than average compared to other occupations. A breakdown of Florida's CTE teacher employment data compared to non-CTE teachers, according to the U.S. Bureau of Labor Statistics by state as of May 2021, are shown in the table below.

Florida's Teacher Employment and Wages Data			
Type	Grade Level	Employment	Annual Mean Wage
CTE Teacher	Middle School	470	\$71,660
CTE Teacher	Secondary School	8,330	\$67,970
CTE Teacher	Postsecondary School	7,710	\$59,660
<i>Non-CTE Teacher</i>	<i>Middle School</i>	<i>32,700</i>	<i>\$60,280</i>
<i>Non-CTE Teacher</i>	<i>Secondary School</i>	<i>50,920</i>	<i>\$64,120</i>

As you can see from the table data, postsecondary CTE teachers earn less than middle school and secondary school. This may be because postsecondary CTE teachers are usually hired as adjuncts or part-time teachers. Interestingly, middle school CTE teachers earn more than secondary school CTE teachers on average. Conversely, non-CTE middle school teachers earn less than non-CTE secondary school teachers.

Florida CTE Teacher Certification

As of 2022, in Florida, there are two ways to get certified as a CTE teacher: Degreed (grades 6-12) through the Florida Department of Education (FDOE) and Non-Degreed (postsecondary) through a local school district with completion of mandatory CTE education courses (The Florida Legislature, 2021). To further complicate matters, local school districts hire secondary

(grades 6-12 schools) and postsecondary CTE teachers (area technical colleges/dual enrollment).

Florida Degreed Career and Technical Coverages

Secondary CTE teachers need a Florida Professional Educator’s Certificate or a Temporary Teaching Certificate for three years (FDOE, Teacher Certification, n.d.). The teacher applicant must receive a passing grade on three FTCE examinations (General Knowledge, Professional Education, and Subject Area tests), have a completed bachelor’s degree or higher with 30 credit hours in a specific subject area, and submit fingerprints. Upper division college level courses at the 3000/4000 level are usually three credit hours each. Therefore, each certification requires at least 10 three-credit hour courses. CTE teachers also need at least one industry certificate to teach that subject in a 6-12 grade school level where applicable (Martino, 2017; The Florida Legislature, 2021).

The ‘subject area’ at the secondary level is called Degreed Career and Technical Coverages (FDOE, Teaching, n.d.). The applicant’s bachelor’s degree official transcript is required to show courses (at least 30 credit hours) completed in one of the five secondary level Degreed Career and Technical Coverages.

The five Degreed Career and Technical Coverages include: (a) Agriculture (grades 6-12); (b) Business Education (grades 6-12); (c) Engineering and Technology Education (grades 6-12); (d) Family and Consumer Science (grades 6-12); and (e) Marketing (grades 6-12). The courses (30 credit hours or 10 courses) can include any combination of approved subtopics within a degreed coverage but must include courses in more than one subtopic. Furthermore, the five CTE coverage area subtopics represent practically all of Florida’s Career Cluster Curriculum Frameworks, except two: (a) Government & Public Administration; and (b) Law, Public Safety & Security (FDOE, CTE, n.d.).

The table below lists the five degreed coverages and the subtopics needed to fulfill the 30 credit hours (CH).

Florida’s Degreed Career and Technical Coverages and Subtopic Areas				
Agriculture	Business Education	Engineering & Technology Education	Family & Consumer Sciences	Marketing
Soil Science	Accounting	Materials & Manufacturing Processes Technology	Clothing Construction	Theory & Practices (15 CH)
Agricultural Mechanics	Economics or Finance	Drafting & Design Technology	Textiles	Economics

Food & Resource Economics	Computer Science	Energy & Power Technology	Food Preparation	Finance
Animal Science	Business Communication	Graphics Communication Technology	Nutrition	Accounting
Agronomy	Business Law	Electronics Technology	Child Development	Personal Management
Horticulture		Construction Technology	Family Relations	
Entomology		Transportation Technology	House & Home Furnishings	
Forestry & Natural Resources		Biomedical Technology	Home Management	
		Information Technology	Family Economics	
		Industrial Systems Technology	Consumer Education	

In each of the degreed coverages, there are instructions on the subtopic requirements. The Agriculture Coverage requires any four of the subtopics to be included in the required 30 credit hours. The Engineering and Technology Education Coverage requires four of the 10 subtopics listed. Additionally, the Materials & Manufacturing Processes Technology subtopic in Engineering & Technology Education includes courses in woods, metals, and man-made materials. The Industrial Systems Technology subtopic in Engineering & Technology Education includes courses in robotics, laser technology, fiber optics, or other feedback controlling systems. In the Marketing Education coverage, 15 credit hours in the Marketing Theory and Practices subtopic is required. The Business Education and Marketing Coverages have three similar subtopics: (a) accounting; (b) economics; and (c) finance.

Florida Non-Degreed CTE Teacher Certification

Non-degreed CTE teacher certification is required for programs where occupational experience is valued as subject matter education. Most likely, coursework is not available at the bachelor's degree level upper division. This type of teacher certification is usually at the postsecondary level for technical and community colleges. In Florida, area technical colleges (ATC) are part of the local school district and are governed by the state through the K-12 education system, but serve mostly postsecondary students, which is an exception to nationwide practices (AdvanceCTE, 2021b).

In Florida, there are 67 local school districts, each with their own CTE teacher hiring and certification practices. While the local school districts certify the postsecondary non-degreed CTE teachers independently, they still must adhere to the Florida Statute 1012.39. According to Florida Statute K-20 Education Code, Chapter 1012, Section 39,

(C) Part-time and full-time non-degreed teachers of career programs. Qualifications shall be established for non-degreed teachers of career and technical education courses for program clusters that are recognized in the state and are based primarily on successful occupational experience rather than academic training

(C) d. For full-time teachers, completion of professional education training in teaching methods, course construction, lesson planning and evaluation, and teaching special needs students. This training may be completed through coursework from an accredited or approved institution or an approved district teacher education program

(The Florida Legislature, 2021).

At this time, there are three ways to adhere to the CTE professional education coursework: (1) through an approved district teacher education program; (2) through online workshops provided by Florida's Association for Career and Technical Education (FACTE, n.d.); and (3) through UCF's non-degreed CTE course offerings (UCF CWE, n.d.).

The approved district teacher education programs may not be available in all 67 districts and most likely are not focused on CTE teachers. The FACTE online courses are short, focused workshops that are not college credit, but are free for CTE teachers. The online college credit courses at UCF are offered as a service to the CTE teacher community and have a special registration process so teachers can take courses individually. However, they are tuition-based and do not qualify for financial assistance as non-degreed courses. Additionally, CTE teachers who work for local school districts cannot use state tuition waivers like vocational education teachers who work for correctional institutions.

Postsecondary CTE teachers who work for public community colleges, state colleges, universities, or other private education institutions have their own hiring requirements that do not adhere to the K-20 Education Code. Their hiring practices are usually based on occupational experience and certifications. After they are hired, they may be offered professional development workshops in pedagogy or other faculty development courses (Martino, 2021).

Florida CTE Teacher Education and Preparation Programs

In the 1990s, there were 27 CTE teacher education programs in Florida. Now, there are only three: University of Florida (UF), Bethune Cookman University (BCU), and University of Central Florida (UCF) (Martino, 2017). UF has Agriculture Education and BCU has Business Education.

Both programs are initial teacher certification programs and on campus. UCF has a Bachelor of Science degree program called Career and Technical Education. The B.S. is fully online and prepares future or present CTE teachers in all degreed coverages. There is a specialization course within the program that focuses on Business Education, Health Occupation Education, and Industrial Education. The UCF CTE B.S. degree is not an initial teacher certification program.

Florida CTE Teacher Recruitment and Retention

Lessons Learned: Florida

Florida Issues and Challenges

CTE works well in Florida, as it does across the nation. The data is clear. CTE students do better on standardized or industry testing, graduate on time, and get better paying jobs (AdvanceCTE, 2021). To that end, depending on who you ask, you can still identify a multitude of issues and challenges with CTE programs in Florida. However, the purpose of this toolkit is to focus on CTE teacher recruitment and retention. We know that prepared teachers are quality teachers who are most likely to stay in their positions. So, what are the issues?

1. There are not enough CTE teacher education programs
 - a. There are only three in the whole state, and two of them are industry specific.
 - b. Of the three CTE teacher education programs, enrollment is low compared to the number of CTE programs offered at the secondary and postsecondary levels.
 - c. Research has shown that formal education degrees and college-credit coursework has a positive effect on student learning outcomes compared to professional development workshops.
2. FLDOE degreed CTE coverage requirements do not align with the requirements of upper division coursework and bachelor's degree requirements at state colleges and universities.
 - a. Student teachers end up taking more than 120 credit hours for their bachelor's degree if they can even find courses that follow their degreed coverage requirements. For instance, and not limited to these examples, there are no Home Management or Textiles upper division courses in bachelor's degree programs.
3. Postsecondary CTE teachers who work for local school districts must pay for college-credit CTE professional education courses that are mandated by the State.
 - a. Vocational education teachers who work for the state in correctional facilities can use a state waiver for college-credit courses.

4. The 67 local school districts that certify postsecondary CTE teachers have varying requirements, which can be confusing.
5. The local school district postsecondary CTE teacher certificate will not transfer to other counties within Florida.
 - a. If a postsecondary CTE teacher gets certified in one county, their CTE teacher certificate may not be accepted if they get a job in another county.
6. Postsecondary CTE teachers are hired mostly as part-time adjuncts. Therefore, retaining quality CTE teachers is a challenge.

Equity Issues

To improve equity issues in postsecondary CTE, it is important to discuss the demographics of secondary and postsecondary CTE students in Florida's public school system. The table below shows a side-by-side comparison between those demographic groups by percentages.

Secondary CTE Enrollment	Postsecondary CTE Enrollment
<p style="text-align: center;">Gender</p> <p>Male: 51.7%</p> <p>Female: 48.3%</p>	<p style="text-align: center;">Gender</p> <p>Male: 46.5%</p> <p>Female: 53.5%</p>
<p style="text-align: center;">Race</p> <p>White: 39.6%</p> <p>Hispanic: 32.8%</p> <p>Black: 21.3%</p> <p>Two or more: 3%</p> <p>Asian: 2.8%</p>	<p style="text-align: center;">Race</p> <p>White: 42.9%</p> <p>Hispanic: 30.4%</p> <p>Black: 20.4%</p> <p>Two or more: 2.9%</p> <p>Asian: 2.8%</p>

In review of the above demographic comparison table, it appears there is an increase in White student enrollment and Female student enrollment in postsecondary CTE programs compared to the secondary CTE enrollments. Hispanic and Black student enrollment at the postsecondary level dropped by 2.4% and 0.9% respectively.

Recommendations for Practice: Florida

Recruitment: CTE teachers should be as diverse as the students they teach. Therefore, recruitment for diversity in CTE teachers is warranted. To reach a goal of equity and diversity in

CTE teacher rosters, it is advisable to encourage applicants through places of business and chambers of commerce for that specific CTE industry. It is also advisable to market CTE teacher positions on various platforms and include an equity/diversity statement.

Training: Overall, Florida’s CTE program student enrollments are diverse. From this, it is evident that Florida’s CTE teachers need to have the pedagogical and professional teaching knowledge to produce successful student learning outcomes with such a diverse student body. Quality CTE teachers who have had professional education coursework in pedagogy have a significant relationship to equity in postsecondary CTE, as revealed in a study that analyzed international quality teaching practice evidence (Grudnoff et al., 2017). It is also evident from the research literature that formal degreed education is more likely to support student success (Martino, 2017). Therefore, it is advisable to provide tuition waivers for all CTE teachers to continue their education and provide them support and mentorship to complete their degrees. Incentives for higher degrees are advisable as well. This could include rank level promotions for advanced degrees. By providing tuition waivers for CTE teacher education degrees and/or coursework, it will provide incentive for recruiting a diverse roster of applicants.

Retention: Due to critical shortages and retention issues of CTE teachers, it is evident that plans must be put into place. One way is to hire CTE teachers full-time and with sufficient salaries and benefits that reflect their expertise in their industry. Most CTE teachers have years of experience in their field, which is a requirement. Another incentive for retention is to offer teacher awards and recognition events. Create a culture of respect for teachers at the workplace. Highlight teacher accomplishments. Celebrate our teachers.

Florida State Contact Resources

- Toolkit Contributor: Lisa Martino, PhD - Lisa.Martino@ucf.edu
- Florida DOE CTE Division Directory: <https://www.fldoe.org/academics/career-adult-edu/division-directory.stml>
- Florida DOE CTE Staff Directory: <https://www.fldoe.org/academics/career-adult-edu/career-tech-edu/staff.stml>



KENTUCKY

Contributor: Jodi Adams, PhD

Kentucky CTE Economy and Industry

Best known for the fastest two minutes in sports and the only place bourbon can truly be born, Kentucky is more than the Derby or decadent spirits. While first in whiskey exports, and home to a thriving thoroughbred industry, Kentucky is also first in vehicle production per capita, making manufacturing the largest single contributor to Kentucky's economy. Kentucky is also home to several Fortune 500 companies, including Humana, YUM! Brands, and Kindred Healthcare, as well as popular food service corporations such as Papa John's and Texas Roadhouse. Since Kentucky is within a day's drive of almost 67% of the U.S. population and a two-day ground delivery to almost 90% of the continental U.S., we have a significant logistical advantage and can move those produced vehicles to their destinations quickly by the 20 interstates and major highways running through the state (KCED, 2022). We are the only state with three international air shipping hubs, operated by UPS, Amazon, and DHL. With the lowest industrial power costs east of the Mississippi and the lowest overall business costs in the nation (CNBC), as well as labor costs typically 20% lower than the U.S. average, Kentucky depends heavily on a highly skilled workforce focused on high demand, high wage jobs in growth sectors. The Commonwealth's population of roughly 4.46 million people look to secondary and postsecondary Career and Technical Education to prepare them for success in a global economy.

Kentucky CTE Enrollment Status

Career and technical education (CTE) in Kentucky comprise secondary and postsecondary education offered in agriculture, business and marketing services, construction, engineering and technology, family and consumer sciences, health sciences, information technology and media arts, law and public safety, manufacturing, and transportation (ACTE, 2020). Secondary CTE is a multi-layered system with state operated Area Technology Centers (ATCs), local district operated CTE centers (CTCs), programs at middle schools and comprehensive high schools, and specialized courses at technical and community colleges and universities for high school students. According to the Kentucky Perkins V State Plan,

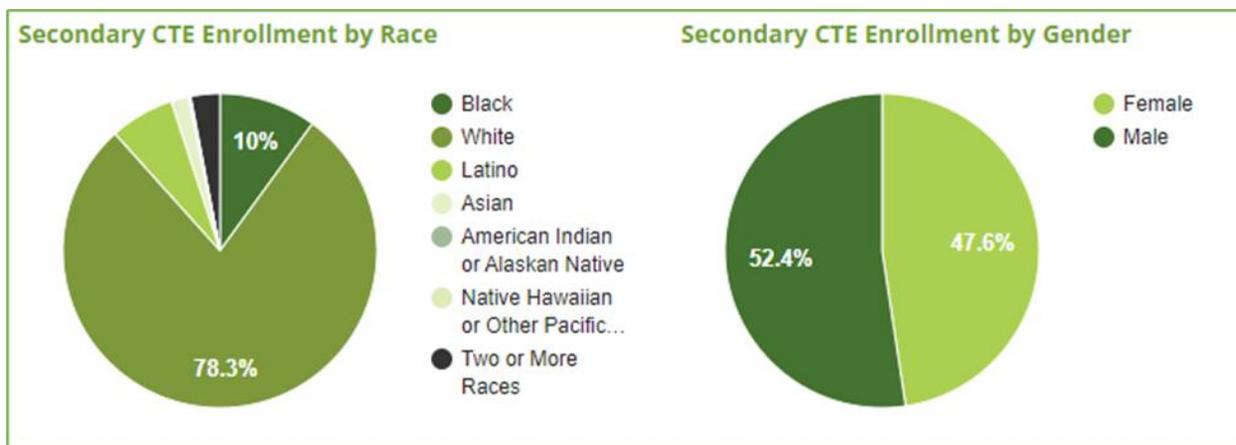
“The Kentucky Department of Education (KDE) and the Kentucky Community and Technical College System partner to ensure secondary and postsecondary programs are aligned and meet the state's five priority sectors set by the Kentucky Workforce Innovation Board (KWIB). The five sectors include: Advanced Manufacturing; Healthcare

and Social Assistance; Business and IT Services; Construction and Trades; and Transportation, Distribution and Logistics. Both providers offer technical programs of study that fall into each of the five sectors. KCTCS offers 68 programs of study within the five priority sectors. KDE offers 150 career programs of study that are aligned with the five state industry sectors or the state’s top occupations. “

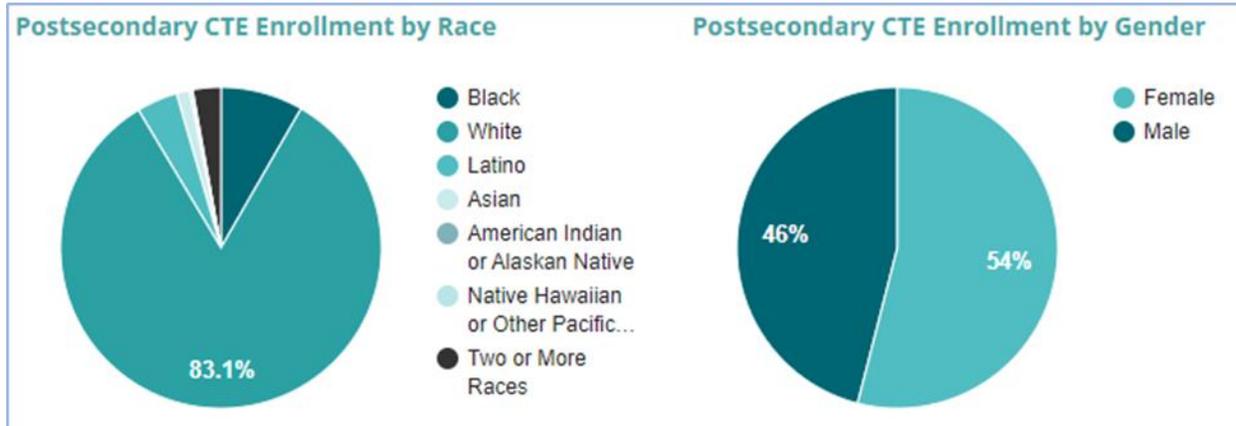
Postsecondary CTE programs are offered through a variety of institutions of higher education. KCTCS is a system of 16 colleges with more than 70 locations across the Commonwealth and online, which provides certificates, diplomas and associate degrees leading directly to careers in the workforce or the option to transfer to a four-year institution. CTE also is offered at a variety of four-year postsecondary institutions, both public and private, across the state. Four of these institutions, Eastern Kentucky University, Morehead State University, Murray State University and Western Kentucky University, have recognized federal programs and are therefore eligible agencies to receive federal Carl D. Perkins funding.

According to AdvanceCTE, in 2021, federal Perkins funding for Kentucky totaled \$20,455.36. Total secondary CTE enrollment for the state was 199,410 students, with 61,075 classified as high school CTE concentrators. Total postsecondary enrollment for public community colleges, both full and part-time, totaled 107, 207 students, with 31, 306 classified as postsecondary CTE enrollment and 20,314 of those classified as CTE concentrators.

Demographic breakdown for Kentucky secondary CTE students:



Demographic breakdown for Kentucky postsecondary CTE students:



Kentucky CTE Teacher Hiring Practices

Kentucky Secondary CTE Teacher Salaries

The Commonwealth of Kentucky is a “local control” state, meaning each of the 171 school districts determine salary for their certified teachers. Each salary schedule typically provides a salary based on the step, or number of years teaching, and rank. Kentucky has a tiered teacher certification structure that determines salary called Rank. Traditionally certified teachers earn Rank 3 status with a bachelor’s degree in education or in the content area in which certification is sought. A qualified rank change master’s degree is required to advance to Rank 2. An additional 30 semester hours of additional graduate work or continuing education in an approved rank change program is required to advance to Rank 1. Traditionally certified teachers can also advance to Rank 1 upon completion of the National Board for Professional Teaching Standards certification. An additional increase in salary is typically awarded when a teacher earns a doctoral degree in the content area or educational related area.

The average secondary CTE teacher salary in Kentucky is \$60,371, according to the Kentucky Center for Statistics, a statewide data clearing house produced in cooperation with the US Bureau of Labor Statistics (KyStats, 2022). For postsecondary faculty, the salary is determined by each institute of higher education. The average CTE postsecondary instructor salary is \$ 75,036, which includes instructors in Business, Computer Science, Engineering, Agriculture, Health Specialties, Nursing, Criminal Justice and Law Enforcement, Family and Consumer Science, and CTE (vocational instruction).

Kentucky CTE Teacher Certification - Secondary

Traditional Certification Routes:

Traditional secondary CTE programs, such as Agriculture, Business and Marketing, Family and Consumer Science (FCS), Engineering, and Computer Science have various routes in which



certification can be completed for certification in grades 5-12, including traditional undergraduate degree programs in teacher education, traditional master's degree programs, alternative master's degree programs, and 5th year certification programs. Kentucky's certification body, Education Professional Standards Board (EPSB), has various ways a teacher can get certified to teach in a secondary building, called Options. The most used alternative route for pursuing teacher certification, especially for Agriculture and FCS, Option 6 is a university-Based program that allows individuals who hold a minimum of a bachelor's degree in a non-teaching major to pursue initial teacher certification through an EPSB approved teacher preparation program at a participating Kentucky college or university. The student is enrolled in a program while concurrently teaching in a Kentucky school district in the area for which they are seeking certification through their program. Upon admission to the program at the college/university – the college/university produces a hiring eligibility letter for the student to submit to a hiring district which indicates the certification area for which they are eligible for hire, based on their program of study. To be eligible for the University-Based Alternative Certification Route, one must meet the following criteria:

- Must have a bachelor's or graduate degree with at least a cumulative 2.75/4.0 grade point average (GPA) or 3.0/4.0 on the last thirty hours of credit completed.
- Meet university admission standards for their teacher preparation program.

With the Option 6 route, once admitted to the program and if hired by a school district, an individual is issued a Temporary Provisional (TP) certificate upon completion of the appropriate application started by the district. The TP can be renewed two additional years beyond the initial issuance - a total of three years to complete the program.

Another secondary certification route gaining popularity in Kentucky is Option 5, which allows veterans of the armed forces with a bachelor's degree in the subject matter or related area for which certification is sought to be certified. The only CTE content areas available with this route are Business/Marketing, Engineering, and Computer Science. A veteran is a candidate for this route if he or she:

- Were discharged or released from active duty under honorable conditions after six years of active duty immediately before the discharge or release.
- Have a bachelor's degree in the subject matter or related area for which certification is sought.
- Have a GPA of 2.75 for a bachelor's degree or hold an advanced degree; and
- Have passing scores on EPSB-approved subject matter assessments.



A candidate meeting these requirements receives a Statement of Eligibility. After obtaining employment, the candidate is issued a one-year Provisional Certificate. Upon successful completion of the Kentucky Teacher Internship Program (KTIP) during the first year of teaching, the teacher receives the Professional Certificate. In addition, veterans may also qualify for the Troops to Teachers program, which offers stipends to qualified candidates willing to teach in "high need" school settings.

Additional options for secondary teacher certification in Kentucky include the following:

- Candidates trained through an out-of-state online program
- Exceptional Work Experience for Teaching Grades P-12
- Local District Training Program for Teaching Grades P-12
- Institute Alternative Route
- College Faculty for Teaching Grades 8-12
- Adjunct Instructor for Teaching Grades P-12
- Teach for America
- Proficiency Evaluation

More information on each of these options can be found in the Resources section below.

Kentucky Secondary Occupation-based Certification Route:

For candidates transitioning into the classroom from business and industry, the Kentucky New Teacher Institute (NTI) is a 24-month induction model administered by the Kentucky Department of Education (KDE) for all secondary occupation-based (OCB) Career and Technical Education teachers pursuing professional teacher certification for grades 5-12 in Kentucky. Teachers are required to complete the 24-month cycle, a combination of face-to-face state-wide and regional meetings, online collaboration, and classroom-based support provided by KDE program consultants, trained mentor coaches, mentor teachers, content specific Professional Learning Community lead teachers, and building administrators. OCB teachers are required to have work experience in their occupation area for at least four years, and two of those four years within the last five years to promote a continued connection with business and industry and an understanding of the most current trends. The average OCB teacher applying for certification in the state has worked in their field ten years or more (Bureau of Labor Statistics, 2017).

Until October of 2017, regardless of prior education, OCB teachers in Kentucky were also required to complete a 64-hour planned program with one of five participating universities. This included courses in teaching CTE, as well as completing a rigorous internship program in



their first year of teaching, adding unnecessary and unrealistic burden to the new teacher. Most of these teachers are replacing teachers leaving the profession, while a few are hired due to program growth and newly created positions. This ongoing churn costs school districts thousands of dollars each year in human resource expenses and impacts the long-term growth of CTE programs around the state. High school teacher turnover impacts CTE programs due to the dependence on relational connections that motivate a student to continue taking CTE courses (Cellini, 2006; Kelly & Price, 2009; Plank et al., 2008; Richardson, et al., 2016).

In July of 2018, the Kentucky Department of Education introduced a revised teacher induction program for individuals transitioning from business and industry seeking OCB certification. NTI was moved from a one-year program to a two-year induction experience, with the following components:

- A combination of face-to-face and online learning, kicked off each summer with sessions embedded in the Kentucky Association of Career and Technical Education Summer Program,
- Regional meetings in the fall and spring each year that includes two days of facilitated interaction with a community of practice,
- A midyear two-day professional development session at the end of the first year,
- A new mentor program with structured support provided by a veteran CTE teacher, a retired or postsecondary CTE educator, and content specific veteran teachers.

NTI utilizes a framework of support created by the Southern Regional Education Board which includes high quality professional development using the Teaching to Lead curriculum, focused on instructional planning, classroom management, instructional strategies, and classroom assessment. The program also includes high quality school support provided by the Mentor Coaches and Mentor Teachers, state program consultants for each pathway and building administrators providing ongoing feedback through regular, structured interactions. These interactions are designed to provide collaborative problem-solving, emotional support, motivation and encouragement, and information and suggestions to new teachers, as well as relieve feelings of isolation often experienced by a novice teacher and increase retention through increased preparedness.

Kentucky NTI was designed to introduce new teachers to the profession while offering practical skills and dispositions to be successful in the classroom. There are ten (10) standards identified by the Council of Chief State School Officers (CCSSO) through its Interstate Teacher Assessment and Support Consortium (InTASC). Those standards include Learner Development, Learning Differences, Learning Environments, Content Knowledge, Application of Content, Assessment, Planning for Instruction, Instructional Strategies, Professional Learning and Ethical Practice,

Leadership and Collaboration. Using the Southern Regional Education Board Teaching to Lead curriculum, these standards are organized into four (4) modules that organize the content in a sequence appropriate for beginning in-service teachers: Classroom Management, Classroom Assessment, Instructional Planning, and Instructional Strategies.

Candidates pursuing occupation-based certification must satisfy a degree requirement within six (6) years of initial provisional certification. An associate degree or higher in the content area in which the candidate is seeking certification or Career and Technical Education is required for professional teacher certification. A bachelor's degree or higher in the content area in which the candidate is seeking certification, or an approved Rank 1 program, or Career and Technical Education is required for Rank 1 status. Candidates pursuing certification through NTI are eligible to earn up to twelve (12) credit hours at the pre-baccalaureate or post-baccalaureate level by taking designated courses through four approved universities to be applied to the appropriate degree.

There are 42 content areas available through this secondary certification route:

Air Conditioning and Heating	Cosmetology	Law Enforcement
Airframe and Power Plant Mechanics	Culinary and Food Services	Machine Tool Technology
Allied Health	Diesel Technology	Manufacturing Technology
Auto Body Repairs	Dietetics	Marine Technology
Auto Technology	Early Childhood Education	Masonry
Aviation Technology	Electricity	Plumbing
Building Maintenance	Electronics	Power Technology
Business and Marketing	Emergency Medical Services	Pre-Law
Carpentry	Energy	Sheet Metal
Commercial & Rec Small Engine Technology	Engineering Technology	Small Engine Repair
Computer Aided Drafting	Fire Service Technology	Veterinary Assistant
Computer Graphics Technology	Health Science	Video Production
Computer Science	Heavy Equipment Repair	Welding
Computer Systems Technology	Industrial Maintenance Technology	Wood Manufacturing Technology

Kentucky CTE Teacher Certification - Postsecondary

Kentucky's postsecondary community college environment is governed by the Kentucky Community and Technical College System (KCTCS). There are 16 colleges within the system and each college is responsible for recruiting and hiring eligible faculty. The campus hires CTE faculty from industry to teach college coursework and may also certify high school instructors to teach dual credit classes. Since Kentucky is part of the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC), the regional accrediting agency for KCTCS colleges, an institution must justify and document the qualifications of its faculty. For technical programs, these qualifications vary based on the program. For example, a nursing instructor

position may require a master's degree. A faculty member may hold the program degree (i.e. an Associate's degree in welding) and teach in the program. Some AAS programs with a strong transfer component, such as business, may require a master's degree to teach. In some technical/trades fields, a faculty member may be credentialed by exception based on experience or certifications held. KCTCS faculty are offered professional development as new and as continuing instructors. New faculty programs are offered at many of the colleges; all new faculty are peer mentored. CTE faculty attend conferences around their technical field, work with industry advisors, and attend college-provided professional development to ensure understanding of the support of special needs students, college advising protocol, and curriculum (State Perkins V, 2021).

Kentucky CTE Teacher Recruitment and Retention

Lessons Learned: Kentucky

Kentucky Issues and Challenges

The Commonwealth of Kentucky continues to move Career and Technical Education forward. However, one of the biggest issues CTE has faced is the public perception of traditional vocational education versus Career and Technical Education and the attitude of academic educators who have not seen the value of CTE. Ongoing efforts have improved these negative perceptions and educators, especially guidance counselors, have begun to understand the importance of appropriate master scheduling for CTE pathways, as well as the value in career advising for students. As reported by AdvanceCTE (2022), changes to the state education accountability plan over the last few years included specific indicators designed to value CTE student proficiency equal to academic achievement:

Kentucky's accountability plan includes a Transition Readiness indicator designed to measure a student's preparedness to transition to the next level in their education and/or career. At the high school level, students can demonstrate transition readiness in one of three dimensions: academic, military or career readiness.

Opportunities for demonstrating career readiness include:

- Achieving a benchmark score on industry certifications or earning KY Occupational Skills Standards Assessment (KOSSA) as appropriate for articulated credit, and one of the following:
- Earning a score of B or better on 6+ hours of approved CTE dual credit courses; completing 2 CTE credits and enrolling in the next credit in a CTE program of study; completing a state-approved apprenticeship; or completing an approved process to verify exceptional work experience.

Kentucky has also identified a SQSS indicator measuring Opportunity and Access along four dimensions: rich curriculum, equitable access, school quality and whole child supports. The indicator includes required, selected, and reported measures for elementary, middle, and high schools. At the middle school level, required measures of rich curriculum include access to career exploration coursework, including CTE and other coursework focusing on essential skills. At the high school level, required measures of rich curriculum include students completing a career pathway in a CTE program of study and students demonstrating essential skills by earning a bronze or higher on a work ethic certification.

To earn a work ethic certification, students must:

- Complete a work-based learning experience.
- Participate in a CTSO, student technology leadership program, student government or other extra-curricular activity; and (to earn a silver or gold distinction).
- Complete a career pathway or compete in a state CTSO competition.

Kentucky also provides a menu of six measures of “whole child supports” and will allow schools to select two. One of the six included measures is the ratio of students to career counselors or career coaches.

These additional options for student success indicators, as well as an increased focus on the importance of career coaches, CTSO’s, work-based learning opportunities, and essential skills, have moved CTE from the shop class at the back of the school to an integral part of a high school’s student success strategy and increased awareness of CTE options for all students. With this increased awareness, colleges and schools have seen an increased need for CTE instructors and has exacerbated the already small number of available educators to meet demand.

While efforts have been made to improve the secondary certification process for business and industry professionals transitioning into CTE classrooms and new faculty training initiatives have been implemented at the postsecondary community college level, there are areas that present challenges to moving CTE forward. The differences in secondary and postsecondary teacher certification requirements hamper efforts to create dual credit opportunities for secondary students, as most secondary educators pursue education related degrees and do not obtain the necessary graduate level coursework in their area of certification. This has become a recognized barrier to dual credit efforts, despite a growing body of research that shows us the importance of dual credit. Entering postsecondary education with credits can decrease the time it takes to obtain a degree (Karp et al., 2007), which could also decrease the overall tuition cost to obtain a degree (Texas Higher Education Review Board, 2018). Several universities have

begun to examine ways to incorporate content specific coursework into teacher educator degree programs to address the problem and information will be provided in this toolkit as changes are made.

Equity Issues

Ongoing equity issues, including race, gender, socioeconomic status, disability, religious beliefs, sexual orientation, family background, and social capital, continue to be addressed at every level of education in Kentucky. In 2021, Governor Andy Beshear and his administration renewed efforts to increase diversity in the classroom and relaunched the Kentucky Academy for Equity in Teaching, a statewide effort to recruit and retain a more diverse workforce of teachers (Shreve, 2021). According to the article, “almost 61% of Kentucky’s student population last school year (2019-2020) were considered economically disadvantaged”. Also mentioned, “according to Kentucky Department of Education (KDE) statistics, during the 2019-2020 school year, about 25% of students identified as a race other than white, while only about 5% of teachers identified as non-white”. The initiative provides grants, mentoring, and training, as well as support for recruitment.

While the federal Perkins funding provides support for CTE programs around Kentucky, one of the biggest challenges is the availability of funding to provide adequate programs for all students. To increase awareness of CTE funding and equity issues in the state, the Kentucky Association of Career and Technical Education (ACTE) produced a white paper in 2021 with specific recommendations to the state legislators to increase financial support for CTE instruction (Acteonline, 2021). The report included statistics for secondary and postsecondary CTE participation for the 18-19 school year:

Secondary CTE Program Offerings and Deliverables:

- 137,195 CTE Students (18-19)
- 22,396 Industry Certifications earned (18-19)
- 149 Career Pathways
- 13 Program Areas
 - Agricultural Education — 8 Career Pathways
 - Business and Marketing Education — 11 Career Pathways
 - Construction Technology — 20 Career Pathways
 - Education and Training --- 1 Career Pathway
 - Engineering Technology Education — 21 Career Pathways
 - Family and Consumer Sciences Education --- 10 Career Pathways
 - Health Science --- 13 Career Pathways

- Information Technology --- 11 Career Pathways
- JROTC --- 4 Career Pathways
- Law and Public Safety --- 7 Career Pathways
- Manufacturing Technology Education — 26 Career Pathways
- Media Arts --- 3 Career Pathways
- Transportation Education --- 14 Career Pathways

Kentucky Community and Technical College Postsecondary Offerings and Deliverables:

- Total Enrollment --- 42,546 (18-19)
- Total Credentials Earned — 9,658
- Industry Certifications earned --- 251
- Degrees earned — 2,618
- Certificates earned — 6,065
- Diplomas --- 724
- Total Pathways — 95 pathways

Additionally, the report included educational outcomes for CTE students from the 2018-2019 graduating cohort:

- 57 percent of high school graduates who completed a career pathway enrolled in postsecondary education the next year. (2019)
- 37 percent of high school graduates completed a career pathway in 2020.
- 99 percent of secondary CTE concentrators graduated. (2019) (A secondary completer is a student who completed four or more credits within a state-approved career pathway. A postsecondary completer is a student who completes a postsecondary program and earns a certificate or associate degree.)
- 76 percent of secondary CTE concentrators earned an industry certification or passed an end-of-program (EOP) assessment. (2019)
- 76 percent of postsecondary CTE concentrators earned a credential, certificate, or degree. (2019)

Ongoing efforts to bring attention to the funding inequities have been met with success. In the 2022 legislative session, the state budget included significant financial increases to CTE instruction in Kentucky. Spending for CTE nearly doubled from \$64.8 million in 2022 to \$126.9 million each year of the upcoming biennium. Lawmakers allocated \$70 million from those amounts in each fiscal year to specifically support vocational education centers and more than \$420,000 in each fiscal year to provide step and rank pay increases for state-run area technology center employees.

Kentucky: Recommendations for Practice

Recruitment:

At the secondary level, while there are great options available to transition into the classroom, very few business professionals are aware of the route to the classroom. Kentucky has a dedicated job search dashboard, hosted by the Kentucky Department of Education, that helps job applicants and school districts connect on available vacancies (KEPS). However, there has not been any marketing done to promote the tool to potential prospective teachers. This tool could be better utilized to build awareness of potential teaching opportunities to individuals interested in moving into the classroom.

Training:

With the recent changes to the certification route for occupation-based CTE teachers, as well as the addition of Business/Marketing, Computer Science, Culinary and Food Services, Engineering, and Pre-Law to the approved content areas list, fewer secondary CTE teaching positions have gone unfilled and occupation-based teachers are staying in the classroom longer.

As mentioned in the state Perkins plan, Kentucky community college faculty are offered professional development as new and as continuing instructors. New faculty programs are offered at many of the colleges; all new faculty are peer mentored. CTE faculty attend conferences around their technical field, work with industry advisors, and attend college-provided professional development to ensure understanding of the support of special needs students, college advising protocol, and curriculum. The Kentucky Association of Career and Technical Education (KACTE) provides annual professional development for secondary and postsecondary career and technical educators. The professional development updates educators on career pathways, career trends and funds available for students who participate in CTE. Intensive training and professional development, by CTE program area, is offered for CTE teachers. Additionally, the conference has focused on targeting more training for school and district administrators, guidance counselors and career coaches over the last several years. Session topics range from developing school improvement plans that address CTE needs and gaps, data analysis, guidance and advising strategies, school scheduling practices and other best practices that align to their specific roles and responsibilities within the CTE community.

The KDE Office of Career and Technical Education also provides opportunities for CTE teachers to renew and upgrade technical skills through the offering of a variety of Technical Update Trainings (TUTs). Secondary CTE state program consultants work with industry leaders and other state partners to plan and coordinate such trainings, driven by data and feedback from



local teachers on areas of needed professional growth. Additionally, state CTE program consultants at the KDE plan and coordinate annual professional development projects for teachers within their respective program areas. These trainings and learning opportunities focus on new/re-designed standards, instructional practices and industry trends, such as innovative equipment, etc. These professional development opportunities are driven by the needs of the CTE teachers, their professional growth needs and changes within the discipline. The recommendation for practice would be a more coordinated effort to connect secondary and postsecondary educators in similar content areas and pathways to create a more seamless transition for students, as well as facilitate opportunities for learning between educators.

Retention:

In Kentucky the average occupation-based teacher applying for certification in the state has worked in their field ten years or more, which often means he or she is taking a reduction in salary to transition into the classroom (Bureau of Labor Statistics, 2017). Consideration for the experience in their content area should be given when determining salary.

Kentucky State Contact Resources

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NEVADA

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Nevada CTE Economy and Industry

Nevada, known for its majestic desert landscape, Elvis-themed weddings, large casinos, vibrant nightlife, and Area 51. It is approximately 284,448 sq. km or 110,567 sq. mi ranking as the 7th largest state in the United States. It is also the home to several natural wonders such as the Valley of Fire State Park and Lake Tahoe. The government owns about 85% of the land.

According to the United States Census (2021), Nevada's population, ranked 32nd, comprises approximately 3,104,614 people, 2,292,476 of which are in the southernmost county, Clark County, where Las Vegas is located. Nevada is one of the nine states that do not have state income tax. It also does not have corporate, franchise tax on income, inventory, inheritance, gift, or estate taxes. According to Nevada's Governor's Office of Economic Development (GOED) (2022), Nevada is considered a business-friendly state because of its low-regulation environment, streamlined licensing and approval processes, and favorable tax environment for business and industry. Nevada has workforce development and education in place to support its economic development, along with its infrastructure, which is ranked #1 by U.S. News and World Report. It also has low-cost startup, regulatory, licensing, and annual fees (GOED, 2022).

Nevada's major economic contributors are hospitality, tourism, gambling (legalized in 1931), and entertainment. This industry is centered in Las Vegas and, to a lesser extent, Reno and Lake Tahoe. The service sector employs about half of Nevada's workers. More than 56 million people visit Nevada each year. Gambling taxes are a primary source of state revenue. Other key industries include aerospace and defense, agriculture, information technology, energy, and health care. Mining is the state's largest export industry. Although copper mining is now much less dominant than before, Nevada is the nation's leading producer of gold, silver, and mercury. Nevada is the largest gold producing state in the nation producing 80% of the country's gold exports (Forbes, 2022). Petroleum, diatomite, and other minerals are also extracted. The state's manufactures include gaming machines and related products, aerospace equipment, lawn and garden irrigation devices, and seismic monitoring equipment. Nevada is also the home of Tesla and the Nevada Northern Industrial Center. Warehousing and trucking are also significant Nevada industries.

With more and more companies moving to Nevada, how is Nevada training its workforce? According to the Nevada CTE Fact Sheet (2022), Nevada is experiencing a skills gap. Currently 51% of jobs require more than a high school degree but less than a 4-year skills training; 48% of Nevada's workers are trained at this level. Nevada was selected as one of the ten states

selected for New Skills for Youth Initiative (NSYI) to strengthen college and career readiness among states. According to GOED (2022), by 2024, 48% of all jobs will be middle-skilled and 22% will be high-skilled in Nevada. How is Nevada CTE preparing its future workforce?

Nevada CTE Enrollment Status

In 2021, Nevada received \$11,925,214 Federal Perkins funds. Sixty-three percent of local formula funding is directed to secondary CTE, whereas 37% is directed to postsecondary CTE (ACTE, 2021). According to Nevada's Report Card (2022), as of October 1st, 2021, there were 72,543 Secondary CTE participants in Nevada and as of 2020-2021 ACTE (2022) reports, 11,263 postsecondary credentials. Currently, Nevada high school completers can earn no cost postsecondary credits that articulate to four of Nevada's community colleges through the CTE College Credit program. See the following link: https://doe.nv.gov/CTE/College_Credit/

Nevada has a total of 16 Career Cluster Framework to support the state's economy. Nevada's Vision Statement is: All Nevadans ready for success in the 21st century. Its Mission Statement is: To improve student achievement and educator effectiveness by ensuring opportunities, facilitating learning, and promoting excellence. Nevada follows the following CTE Quality Program Standards:

QPS 1.0: Career Guidance

QPS 2.0: Program and Instruction

QPS 3.0: Postsecondary Readiness

QPS 4.0: Leadership Development

QPS 5.0: Educational Personnel

QPS 6.0: Program Planning and Promotion

QPS 7.0: Facilities, Equipment, and Instructional Materials and Supplies

QPS 8.0: Community, Business, and Industry Partnerships

QPS 9.0: Evaluation Systems and Accountability

To further the development of leadership and technical skills, Nevada students have opportunities to participate in one or more Career and Technical Student Organizations (CTSOs). CTOS develop character, citizenship, and the technical, leadership, and teamwork skills essential for the workforce and further education. CTSO activities are intracurricular or co-curricular as they are directly related to the competencies and objectives in courses. The six approved Nevada CTOS are:

- DECA
- FBLA (Future Business Leaders of America)
- FCCLA (Family, Career, and Community Leaders of America)

- FFA
- HOSA: Future Health Professionals
- SkillsUSA

Nevada Secondary CTE Student Enrollment Demographics

In Nevada, according to the U.S. Department of Education (2020), of the 69,109 secondary CTE students, 36,684 (53.1%) reported male while 32,425 (46.9%) reported female (U.S. Department of Education, 2020). Approximately 43.4% of secondary CTE students identify as Hispanic, 32% identify as White, while only approximately 9.9% identify as Black (AdvanceCTE, 2022). According to the U.S. Census (2021), Nevada reports 48.2% of its residents as White, 29.2% as Hispanic, 10.3% as Black or African American. See below regarding Equity in Nevada.

The top four career clusters among secondary CTE concentrators in Nevada were Arts, AV, & Communications (24.9 percent), Health Science (14.8 percent), Hospitality & Tourism (13.3 percent), and Information Technology (9.1 percent). These career clusters align with Nevada's workforce needs. A larger push for CTE programs in agriculture, aerospace, and energy are warranted to keep up the state's 21st century landscape. The Nevada offices of GOED, GOWINN, and the local workforce development boards are pushing manufacturing and distribution/logistics. In the 2016-2017 school year, 63% of high school students met performance goals for technical skills (Nape State Fact Sheet, 2021).

Nevada Postsecondary CTE Student Enrollment Demographics

There were approximately 24,233 postsecondary participants in the 2019-2020 school year, as I was unable to find more current postsecondary data. According to the U.S. Department of Education, National Perkins Reporting System (2020), approximately 11,740 identified as female and 12,459 identified as male. Nearly 41.7% of postsecondary CTE students identify as White, while only approximately 28.6% identify as Hispanic, and 8.1% identify as black (Advance CTE, 2022). Approximately 51.4% of Nevada's postsecondary CTE students identify as male and 48.4% identify as female (Advance CTE, 2022). According to Nape State Fact Sheet (2021), 71% of Nevada postsecondary students earned a credential, certificate, or degree in 2019-2020.

The top four career clusters among postsecondary CTE concentrators were Health Science (21.1 percent), Business Management & Administration (19.7 percent), Architecture & Construction (12.9 percent), and Law, Public Safety, Corrections & Security (12.1 percent) (U.S. Department of Education, 2020).

Nevada CTE Teacher Hiring Practices

CTE Teacher Salaries

Nevada ranks number 25 out of 50 states nationwide for CTE Teacher salaries. The following Figure was configured using data from The Bureau of Labor Statistics (2021) and describes Nevada’s CTE teachers’ annual mean salary. Middle school and high school salaries are determined by local school districts/charter schools, just as postsecondary faculty salary is determined by each institute of higher education.

Table 1

Nevada CTE Employment and Wages Data

Nevada’s CTE Teacher Employment and Wages Data			
Type	Grade Level	Employment	Annual Mean Wage
CTE Teacher	Middle School	60	\$61,200
CTE Teacher	Secondary School	180	\$64,640
CTE Teacher	Postsecondary School	1,200	\$66,870

CTE Teacher Certification

Secondary High School Career and Technical Education Licenses allow an educator to teach specific Career and Technical Education (CTE) subjects in grades 7-12. In addition to meeting the basic CTE licensure requirements such as required Nevada Department of Education (NDE) courses and work experience, the teacher must also meet specific requirements for each desired area of endorsement (NDE, 2022). This includes specific industry licenses.

To satisfy the CTE Licensure and Business & Industry Endorsement requirement for a Nevada CTE License, the following courses must be completed: Career and Technical Education Teaching Methodologies, CTE Curriculum and Instruction, Career Development and Work-Based Learning, Career and Technical Student Organization (CTSO) Management. These courses are offered at different universities and colleges throughout the state, selected institutions out of state, and by two districts (Clark County and Washoe County School Districts); however, courses taken at the district are non-credit bearing and may not be transferable to other states (NDE, 2022).

See Nevada’s CTE Teacher Certification Directories below:

[Return to TOC](#)

- https://doe.nv.gov/uploadedFiles/ndedoenvgov/content/Educator_Effectiveness/Educator_Develop_Support/Educator_Preparation/Correlation_Directory/BI CorrDirectory.pdf
- https://doe.nv.gov/uploadedFiles/ndedoenvgov/content/Educator_Effectiveness/Educator_Develop_Support/Educator_Preparation/Correlation_Directory/SecondaryCTE CorrelationDir.pdf

To be certified in CTE areas such as: Agriculture Education, Business Education, Computer Programming, Computer Science, Early Childhood Education, Family and Consumer Science, Marketing Education, and Technology Education, teachers must take the Praxis. Work experience is also considered for B&I and CTE licenses. The state requires mandatory paperwork to be completed about employment, job specifications and requirements, and requisite number of years (NDE, 2022).

CTE Teacher Education and Preparation

Degreed Programs, like UNLV's, where the College of Education offers a master's and PhD in Curriculum and Instruction with an emphasis in Career, Technical, and Postsecondary Education are designed to develop future CTE leaders, faculty members, and researchers in Career and Technical Education, curriculum development, theory, program evaluation, and practice. There are Graduate Certificates in CTE that align with the state's CTE coursework matrices where CTE instructors can fulfill the state's requirements for teaching while earning a Graduate Certificate. Endorsements and B&I Licenses are created for those CTE pre-service teachers that have sufficient work experience along with taking 12 credits of mandatory classes offered by institutions and school districts (Clark and Washoe Counties). These course offerings are created through in-person or online mediums and may be attended in the evening or weekends.

Nevada CTE Teacher Recruitment and Retention

Research consistently shows that teachers and faculty are among the most important in-school factors that determine learner outcomes (Dee, 2004). Evidence also points to the positive impact of a diverse teacher workforce on learner outcomes. Nevada, growing in diversity, will not only have to recruit and retain CTE teachers for expanding programs but also factor in teacher preparation courses that give CTE teachers' diverse teaching experiences. Two potential causes identified by AdvanceCTE in their State CTE Perkins V report regarding recruitment and retention, were high incidences of CTE preparation programs at universities closing and the competition with the private sector for the same pool of qualified candidates along with industry salaries.

Currently, Nevada, like many states across the country, is experiencing a shortage of CTE teachers along with teachers generally. In 2019, Assembly Bill 276 created the Nevada State Teacher Recruitment and Retention Advisory Task Force to evaluate and address the challenges of attracting and retaining teachers throughout Nevada. This Task Force makes recommendations to the Legislative Committee on Education to address these challenges, which may include providing incentives, and submit a report each odd-numbered year regarding the findings and recommendations of the Task Force (NDE, 2022).

(https://doe.nv.gov/Boards_Commissions_Councils/TeacherRet_RecruitAdv/Teacher_Recruitment_and_Retention_Advisory_Task_Force/) Current taskforce discussions, as seen in the April 2022 meeting notes, have identified potential strategies and recommendations such as: state exit and working conditions survey; retention incentives; housing/rental/funding for districts to build or arrange housing; shifting requirements for school counselors, to name a few.

Just as salaries are more localized, the hiring of secondary CTE teachers is a school district/charter school practice and not a state agency practice. Nevada's postsecondary CTE instructor recruitment is also done at the institutional level. Each institution is in control of the recruitment and hiring of CTE faculty. Most positions are posted to the NSHE/institutional websites.

Nevada ACTE (NACTE) holds an Annual NACTE Summer Conference in Lake Tahoe, NV, where in the past, new CTE teachers had a 1-day orientation to get acquainted with state policies and information, along with networking opportunities. This was spearheaded by the NV DOE but has not been held in the past couple of years. This was beneficial to new hires to be able to attend. NV DOE presented information that helped new CTE instructors get acquainted with policies, legislation, and current practices, as well as network with the Nevada CTE community. However, the NV DOE began providing boxes to new CTE educators with some general items they may need for their classroom, information about resources, etc. as well as the NV DOE staff created an outreach mechanism where they follow up with new CTE teachers over the course of the year.

Lessons Learned: Nevada

Nevada's Issues and Challenges

Along with the other states included in this Toolkit, Nevada has produced positive outcomes for CTE students (AdvanceCTE, 2021). However, there are several issues and challenges with CTE in Nevada. For the purpose of this toolkit, CTE teacher recruitment and retention is our current focus. Current Nevada Trend Issues and Challenges:

1. Quality of CTE teacher education programs and training. High-quality CTE teachers are essential for excellent CTE programs.

- a. Most CTE teachers teach under a Business & Industry License and will have only four classes in CTE instruction, methods, etc. before moving into the classroom or while in the classroom because of the provisional license.
 - b. There are very few Traditional Route CTE Teacher Educator Programs (e.g., Agriculture Science, Early Childhood, Computer Science), only one master's and PhD degree program with an emphasis in CTE in Nevada.
2. There are websites and Resources that are out of date, incomplete, or difficult to find information. Having clear and concise procedural information hosted is important for future CTE teachers. It is critical to streamline the process to eliminate potential barriers.
 3. Barriers to access current state demographic information for CTE teachers. Transparency in state data is important, especially as researchers and policy makers collaborate strategic efforts regarding diversity and equity in the teacher workforce.
 4. Like many other states, Postsecondary CTE teachers are hired mostly as part-time adjuncts. This creates issues for both recruitment and retainment of talent.

Equity Issues

Table 2

Secondary and Postsecondary Demographic Data

Secondary CTE Enrollment	Postsecondary CTE Enrollment
<p>Gender Male: 53.1% Female: 46.9%</p>	<p>Gender Male: 51.4% Female: 48.4%</p>
<p>Race White: 32.0% Hispanic: 43.4% Black: 9.9% Two or more: 5.5% Asian: 6.8%</p>	<p>Race White: 41.7% Hispanic: 28.6% Black: 8.1% Two or more: 4.8% Asian: 8.1%</p>

Approximately 68% of Nevada's secondary students and approximately 58% of postsecondary students are non-white (ACTE, 2022). The demographic comparison table indicates increases in White (11.7%), Asian (1.3%), and Female (1.5%) student enrollments in Nevada postsecondary CTE programs compared to secondary CTE enrollments. Conversely, student enrollment

declined at the postsecondary level for students reporting as Hispanic (14.8%), Black (1.8%), or Two or more races (0.7%).

The following two tables are demographic information regarding Special Population and its subgroups according to NV DOE (2022) Perkins V Consolidated Annual Report Summary for 2019-2020. According to the data report, Economically Disadvantaged was the largest subpopulation in both secondary and postsecondary CTE. Whereas, the Disability subpopulation, has the smallest percentage represented. Further investigation is needed as to how recruitment and retention of special populations in Nevada CTE is approached.

Table 3

Secondary CTE Special Populations Data

Secondary CTE Special Populations	2018-19	2019-20
Economically Disadvantaged	52%	61%
Nontraditional Enrollees	16%	17%
English Learners	11%	11%
Disability Status (ESEA/IDEA)	8%	8%

Table 4

Postsecondary CTE Special Populations Data

Postsecondary CTE Special Populations	2018-19	2019-20
Economically Disadvantaged	30%	29%
Nontraditional Enrollees	12%	18%
English Learners	3%	2%
Disability Status (ESEA/IDEA)	2%	2%

According to the Data Interaction for Nevada Accountability Portal (2022), in 2020-2021, Nevada had 6,107 CTE students with an Individual Education Plan (IEP), 7,267 who were Limited English Proficient (LEP), and 50,587 with Free and Reduced Lunch (FRL).

There is no demographic information on CTE teachers and faculty currently available. Without this information, CTE researchers, leaders, and policy makers cannot create inclusive and strategic goals.

Recommendations for Practice: Nevada

- Transparency of clean data and communications of these data between government and state agencies, institutions, and policy makers should be supported both at a secondary and postsecondary level. Specifically, valid and reliable postsecondary data is difficult and at times non-existent for researchers.
- Update Nevada's Department of Education website, as several links were outdated, perhaps creating barriers to prospective CTE teachers.
- Review recommendations given by the Nevada Retention & Recruitment Taskforce.
- Consider what other like-states are doing to increase recruitment and retention efforts.
- Create a CTE Teacher Mentorship program (e.g. Kentucky) to support new CTE teachers in the classroom.

Recruitment

- Recruit with intentionality for diversity. Broaden the scope of diversity among teachers.
 - Nevada's "Grow Your Own" teacher recruitment efforts for CTE teachers through partnerships between districts, industry, and postsecondary institutions.
- Engage with employers and strategic partnerships to increase awareness of CTE teaching opportunities.
- Create data-driven recruitment efforts with stakeholders.
- Target key industry programs at the postsecondary level.

Training

- University Partnerships with districts and colleges for advanced teacher preparation training. Danielson's (2007) teaching framework outlines effective teachers consistently perform in these domain areas: Planning and Preparation, Classroom Environment, Instruction, Professional Responsibilities. Nevada's CTE teachers need to have the pedagogical/andragogical and professional teaching knowledge to produce successful student learning outcomes.
- Prioritize the New CTE Teacher Training during the NACTE Summer Conference.

- Develop a CTE Teacher Institute to offer during the NACTE Summer Conference.
- More offerings of Professional Development courses for CTE teachers in critical need areas.
- Utilize existing CTE Professional Development courses (e.g. ACTE).

Retention

- Strategic mentorships for CTE teachers and instructors and building supportive networking opportunities.
- Building a supportive network of teachers and having a positive role model and mentor as part of one's professional network is important (Hasselquist & Graves, 2020). This can be done within the school or professional association such as NACTE, ACTE, ACTER, etc.
- Teachers that can be innovative in the classroom have influence over career satisfaction and retention (Hasselquist & Graves, 2020).
- Salaries are decided at the district level but having CTE teacher salaries that reflect industry expertise is important. If we want our best industry professionals teaching our students, salary, benefits, and incentives should be enticing.

Nevada State Contact Resources

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- Nevada DOE CTE Website: <https://doe.nv.gov/CTE/>

TENNESSEE

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Tennessee CTE Economy and Industry

Tennessee's population is 6,951,871 and covers 41,235 square miles (TN Quick Facts, 2022). As of November 2021, Tennessee's unemployment rate was 4.0% with 3,311,732 people participating in the labor force (TN Quick Facts, 2022). Of the nearly 7 million residents of Tennessee, only 3,186,789 people have a high school diploma or higher and only 1,085,458 have a bachelor's degree or higher (TN Quick Facts, 2022). Tennessee's Department of Economic and Community Development divides Tennessee's industries into the following sectors: Advanced Manufacturing, Aerospace & Defense, Appliances & Electrical, Automotive (with a focus on Electric Vehicle Manufacturing, Chemicals, Distribution & Logistics, Food & Agriculture, Healthcare & Life Sciences, HQ, Finance, & Tech, and Rubber, Ceramics, & Glass (Tennessee Department of Economic and Community Development, 2022).

In recent months, Tennessee has focused on Electric Vehicle Manufacturing, landing a \$5.6 billion investment from Ford Motor Company and SK Innovation to build an electric battery and vehicle manufacturing plant in West Tennessee (McEachern, 2021). In addition to the Ford facility, Tennessee has seen \$11.9 billion in capital investments from electric vehicle projects since 2017 and ranks number one in the Southeastern United States for electric vehicle manufacturing employment and investment (The Evolution to EV, 2022). The electric vehicle manufacturing industry will affect many other industry sectors, meaning that workforce development and career and technical education will remain a huge focus of the current and future gubernatorial administrations.

Tennessee CTE Enrollment Status

Tennessee's career and technical education offerings are offered through two different mediums. The Tennessee Department of Education (TDOE) provides CTE offerings to secondary school students, and the Tennessee Board of Regents (TBR) offers postsecondary CTE through the Tennessee Colleges of Applied Technology (TCATs) and in some community colleges.

Secondary

According to AdvanceCTE (2021), Tennessee's secondary CTE enrollment is 176,932 out of the total 288,954 students enrolled in public high schools. Of that 176,932, there are 71,545 CTE concentrators in Tennessee's secondary schools (Advance CTE, 2022). Nearly 70% of secondary CTE students are white, while only approximately 16% are black, and close to 10% are Latino (AdvanceCTE, 2021). Approximately 52% of Tennessee's secondary CTE students are male (AdvanceCTE, 2021).

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Postsecondary

Most of Tennessee’s postsecondary CTE offerings are provided by TCATs. According to TBR (2022), the headcount at TCATs in the Fall 2021 term was 18,682, with the average student age of 23.5, and approximately 63% identifying as male. Of those 18,682, 12,748 of the students were white, while only 2,796 were black, and only 1,149 were Hispanic (Tennessee Board of Regents, 2020).

Tennessee CTE Teacher Hiring Practices

CTE Teacher Salaries

According to the U.S. Bureau of Labor Statistics, Occupational Outlook Handbook (2022, January 28), the average salary for secondary CTE educators in Tennessee was \$55,850. The Department of Education does not set the salary range for each school district. Instead, each district determines teacher salaries.

For postsecondary CTE educators, the TBR sets the salary ranges, depending on instructor rank. For the 2021-22 academic year, the adjusted salary midpoints were as follows:

- Associate Instructor - \$48,652
- Instructor - \$52,997
- Senior Instructor - \$57,545
- Master Instructor - \$63,764
- Master Instructor II - \$69,783

(Austin, Personal Correspondence, 2022).

CTE Teacher Certification

Secondary

A person can become licensed to teach CTE in Tennessee in three ways: traditional, alternative, and CTE-specific. The traditional route to an apprentice and professional CTE teacher license is by obtaining a bachelor’s degree or higher, completing an educator preparation program in CTE, passing the content area’s Praxis exam, and receiving recommendation for licensure. The alternative route included postsecondary training in the teaching area, an associate degree, or industry certification or a bachelor’s degree, and “a minimum of five years of appropriate and current work experience in the field in for which the application is made” (Bonsu et al., 2013, p. 101; Hudson, 2021).

The Tennessee Department of Education listed the following requirements for an initial occupational teaching license: “formally admitted to or have completed a state-approved educator preparation program; recommended by the state approved educator preparation

program; high school graduate or higher; meet industry certification requirements; and meet the endorsement experience requirements” (Tennessee Department of Education, n.d.). There are several occupational endorsement areas, each with at least three different pathways for licensure (Tennessee Department of Education, n.d.). Most endorsements require at least a high school diploma or above and at least five years of full-time work experience in the field in which the faculty member will teach, an associate degree and three years of work experience, or a bachelor’s degree in the area of endorsement (Tennessee Department of Education, n.d.). Some endorsement areas require an industry certification in addition to the education and work experience, and some endorsement areas allow a master’s degree to substitute for work experience (Tennessee Department of Education, n.d.). Tennessee listed requirements for professional development for CTE faculty to maintain and renew their license/certification. The professional development requirements for Tennessee CTE faculty, as described by Bonsu et al. (2013) included earning 90 renewal points from professional development or other activities outside of the state-funded in-service days. The Tennessee Department of Education held that those educators holding an initial license must earn 30 professional development points to proceed to a professional license while those holding professional licenses must have 60 professional development points to renew a license.

Postsecondary

In addition to federal and state requirements, both governing bodies of postsecondary education and accrediting bodies have requirements for faculty. In Tennessee, postsecondary technical colleges are governed by the Tennessee Board of Regents. The minimum requirements for faculty employment at Tennessee technical colleges are the following:

- Evidence of good ability in instruction.
- Evidence of potential ability in instruction.
- Evidence of good character, mature attitude, and stable personality.
- Credential indicating high school graduation or equivalent.
- Three (3) years of employment experience in the occupation to be taught and appropriate occupational certification.
- Indication of a willingness to remain current in the occupation to be taught.
- Indication of a willingness to establish and maintain positive relationships with business, industry, and government. (Tennessee Board of Regents, 2019b, para. 3)

Further, the Council on Occupational Education (COE), the accrediting agency for all technical colleges in Tennessee, maintained the minimum faculty requirements are “at least a high school diploma or its equivalent and expertise in the area of responsibility that is actively

maintained, and a record of performance that reflects work-based standards as interpreted by the institution” (Council on Occupational Education, 2019, p. 76).

Tennessee CTE Teacher Education and Preparation

The Tennessee Board of Regents (TBR) offers new instruction training to technical college faculty. Prior to 2019, the new instructor training was more focused on TBR policies than instructional practices. In 2019, however, TBR implemented more robust training on instructional strategies, methods, and practices (Hollins, personal communication, April 27, 2021). This new instructor training has typically been offered once per year, with ongoing opportunities offered through D2L, an online learning management system.

Each TBR institution is required to have a Faculty Development Plan that includes the following:

- Systematic evaluation of instruction.
- Recognition system that encourages instructional innovation and improvement.
- Effective use of employees’ higher education benefits to support faculty development.
- Effective use of institutional funds to support faculty development.
- Sponsorships of local faculty development opportunities.
- Development of faculty exchange programs
(Tennessee Board of Regents, 2018).

Following the guidance set forth by TBR, each Tennessee technical college handles faculty development differently. Several institutions offer ongoing faculty development through programs like Master Teacher, professional learning communities, and institution-led faculty development initiatives (Hudson, 2021). These internal development programs often serve as a supplement or continuation of the TBR-led training. Other education and preparation opportunities involve training from certifying agencies, like the National Coalition of Certification Centers (NC3), the National Center for Construction Education and Research (NCCER), and the National Institute for Metalworking Skills (NIMS). Many TCAT faculty attend training offered by these organizations to award their students with industry certifications (Hudson, 2021). Most of the education and preparation of TCAT instructors, however, comes in the form of peer-to-peer training (Hudson, 2021). Instructors from the same institution help new instructors in everything from the sharing of resources and templates to training new instructors on how to successfully navigate the student information management system, Banner (Hudson, 2021). Some TCAT instructors also travel to other TCATs to shadow instructors from comparable programs and learn some of their classroom management techniques and instructional practices (Hudson, 2021).



Tennessee technical colleges instructors also utilize their program’s advisory committee and other industry partners to remain current in the field in which they teach. This relationship with industry allows instructors to visit their facilities and discuss any new equipment and processes that the businesses are using. Often, instructors will be trained by those in industry on these new processes and equipment to better teach their students. The training helps instructors with the hands-on aspect of their curriculum but does little to assist with instructional or classroom strategies that may be needed to successfully deliver the content (Hudson, 2021).

Tennessee CTE Teacher Recruitment and Retention

Recruitment

The recruitment of postsecondary CTE faculty is done at the institutional level. Institutional and programmatic advisory committees, both required by the Council on Occupational Education, provide input on possible candidates for any current or potential faculty openings. Word of mouth through industry partners, other instructors, alumni, and institutional administration and staff is often the most frequently utilized faculty recruitment strategy (Hudson, 2021). Institutions post openings on their websites, and the Tennessee Board of Regents links openings on their Human Resources page on their site (Hudson, 2021). Institutions also post openings on social media and in their local newspapers (Hudson, 2021).

One of the biggest tools used in the recruitment of postsecondary CTE faculty is the work schedule offered by the technical colleges compared to that in the industry (Hudson, 2021). When asked why he decided to become a teacher, a technical college welding instructor stated, “I know what time I’m getting off every day; I know what time I’m going in. We take for granted a lot, especially working on the road, living out of a duffel bag. It’s not made for everybody, and I soon realized it wasn’t made for me.” This is a common sentiment among technical college faculty and is often used in recruitment (Hudson, 2021).

Retention

Ruhland and Bremer (2003) observed that 15% of new CTE teachers quit teaching within the first year and greater than 50% quit within five years. Approximately 50% of all new CTE teachers quit teaching within five years (McCandless & Sauer, 2010). Stephens (2015) reported that some CTE teachers left the occupation because CTE instructors were not supported or properly trained by administration.

Much like in recruiting, Tennessee’s technical colleges are tasked with implementing their own strategies to aid in the retention of instructors (Hudson, 2021). However, the Tennessee Board of Regents’ Faculty Rank and Promotion policy allows for advancement and promotion of faculty, should they meet certain requirements or should the institution president appeal to the

Chancellor of the Board of Regents for an exception. The criteria for promotion are the following:

1. Associate Instructor

- Evidence of good ability in instruction (as reflected by performance evaluations).
- Evidence of potential ability in instruction.
- Evidence of good character, mature attitude, and stable personality.
- Credential indicating high school graduation or equivalent.
- Three (3) years of employment experience in the occupation to be taught and appropriate occupational certification.
- Indication of a willingness to remain current in the occupation to be taught.
- Indication of a willingness to establish and maintain positive relationships with business, industry, and government.
- A three-year average of 70% for completion and 80% for placement is required for promotion, if applicable.

2. Instructor

- Evidence of good ability in instruction (as reflected by performance evaluations).
- Evidence of demonstrated ability in instruction.
- Evidence of good character, mature attitude, and stable personality.
- Evidence of study in the instructional or related discipline aimed toward an associate degree or higher from an accredited institution (such evidence would include acquiring a minimum of 30 semester hours of academic credit of which 18 semester hours should be in technical education courses designed for technical educators.) or evidence of a college of applied technology diploma consisting of at least 900 contact hours and completion of 15 hours of college-level work in the appropriate concentration, general education, or technical education courses designed for technical educators.
- Three (3) years of teaching experience in the occupational discipline and three (3) years of employment experience in the occupation to be taught.
- Evidence that the instructional program and the instructor are certified or accredited, if applicable.
- Evidence of a developed plan to remain current in the occupation to be taught.
- Evidence of maintaining positive relationships with business, industry, and government.
- A three-year average of 70% completion and 80% placement is required for promotion, if applicable

3. Senior Instructor

- Evidence of good ability in instruction (as reflected by performance evaluations).
- Evidence of good character, mature attitude, and stable personality.
- Credential from an accredited institution indicating an associate degree or 60 credit hours toward a bachelor's degree in the occupational area or a related area.
- Six (6) years of teaching experience in the occupational discipline and three (3) years employment experience in the occupation.
- Evidence of having carried out a planned program to remain current in the occupation to be taught.
- Evidence of maintaining positive relationships with business, industry, and government.
- A three-year average of 70% completion and 80% for placement is required for promotion, if applicable.

4. Master Instructor

- Evidence of excellent ability in instruction (as reflected by performance evaluations).
- Evidence of good character, mature attitude, and stable personality.
- Credential from an accredited institution indicating a bachelor's degree (or above) in the occupational area or a related area.
- Nine (9) years of teaching experience in the occupation and three years employment experience in the occupation.
- Evidence of a well-conceived on-going plan and program to remain current in the occupation to be taught.
- Evidence of maintaining positive relationships with business, industry, and government.
- A three-year average of 70% for completion and 80% for placement is required for promotion, if applicable.

5. Master Instructor II

- Evidence of excellent ability in instruction (as reflected by performance evaluations).
- Evidence of good character, mature attitude, and stable personality.
- Credential from an accredited institution indicating a bachelor's degree (or above) in the occupational area or a related area.
- Fifteen (15) years of teaching experience in the occupation and three years employment experience in the occupation.

- This level will recognize faculty members who reached the Master Instructor level and have continued to do an outstanding job including a three-year history of leadership activities plus a three-year average of 70% for completion and 80% for placement, if applicable.
- Evidence of a well-conceived on-going plan and program to remain current in the occupation and documented by a leadership portfolio.
- Evidence of maintaining positive relationships with business, industry, and government. (Tennessee Board of Regents, 2019b, para. 3)

Lessons Learned: Tennessee

Tennessee's technical college faculty are tasked with ensuring student completion and job placement as required by the Council on Occupational Education, the accrediting agency of all Tennessee colleges of applied technology (TCATs). To receive and maintain accreditation, programs must accomplish a 60% completion rate, a 70% job placement rate in the occupational field in which students are trained, and a 70% licensure pass rate on state required testing (Council on Occupational Education, 2019). In addition to these accreditation requirements, the admission requirements at TCATs allow for the enrollment of students of differing educational and technical abilities (Hudson, 2021). TCATs could develop admission policies and procedures for programs with enrollment limitations and/or specialized curricula (Tennessee Board of Regents, 2019a). These selective policies and procedures must apply to all students and could be impacted by accreditation standards, capacity, faculty availability, and concern for appropriate student progress (Tennessee Board of Regents, 2019a). However, most Tennessee technical colleges do not have required grade point average or ACT scores for enrollment in many of their programs, excluding some Allied Health programs (Hudson, 2021). TCATs admit students on a first-come, first-served basis and require the following criteria.

Students must:

- Be eighteen (18) years of age or have a high school diploma or equivalent.
- Select a program of study.
- Complete an admissions application.
- Submit program specific materials and complete additional requirements of the chosen program (if required).

(Tennessee Board of Regents, 2019a).

Because of these minimal admission requirements, the educational ability of the students enrolled at the technical colleges is often lower than at other types of institutions (Hudson, 2021). In a survey of high school seniors graduating in 2017, 7.6% of those students earning a 1 to 17 on the ACT planned on attending a technical college, while less than 3% of those scoring a 21-24 and 25-28 planned to attend a technical college (Tennessee Higher Education Commission, 2017b). Also, 8.7% of seniors with a 1.00 to 1.99 grade point average planned to

attend a technical college, as opposed to 3.6% with a 3.00 to 3.99 grade point average (Tennessee Higher Education Commission, 2017b).

With minimum requirements of three years of experience in the occupation to be taught and only a high school diploma or its equivalent, Tennessee technical college faculty may enter the classroom with minimal education experience, either as a student or a faculty member, and no formal training on instructional and classroom strategies (Hudson, 2021). Industry experience can sometimes be the only experience a faculty member has upon entering the teaching profession (Hudson, 2021).

Therefore, it is imperative that CTE faculty receive professional development and training on how to be a teacher (Hudson, 2021). However, the biggest challenges to successfully implementing a professional development program on instructional and classroom strategies for Tennessee technical college faculty is creating buy-in from faculty on the need for training and the timing of the training (Hudson, 2021).

Tennessee Issues and Challenges

Equity Issues

Approximately 28% of Tennessee's technical college students are non-white (Tennessee Board of Regents, 2020). Anecdotally, faculty demographics mirror these numbers, as there is no demographic information on faculty readily available. Most TCATs are in rural areas of the state, where the populations are mostly white.

Tennessee Recommendations for Practice

- Partner with a university in Tennessee to develop a professional development program that focuses on career and technical education faculty and includes training on andragogical principles, instructional planning, instructional strategies, classroom management, mental health issues, and technology for postsecondary CTE faculty.
- Streamline the hiring processes at Tennessee Colleges of Applied Technology to allow for job shadowing and training of the incoming instructor.
- Schedule time for incoming instructors to visit comparable programs at other institutions to learn from more experienced instructors. In addition, assign all new instructors with a mentor instructor from a comparable program.
- Offer the new instructor training offered by the Tennessee Board of Regents (TBR) multiple times throughout the year, so that incoming instructors do not have to wait so long to attend the training.
- Within the new instructor training, continue to deliver content on instructional and classroom strategies, but also implement training on mental health issues, technology,

and andragogical principles to account for the open enrollment environment of the TCATs.

- Provide specific scenario-based training of situations that new instructors could encounter in their classroom and provide definitive answers on the right ways to handle them during new instructor training.
- Provide a list of resources that new instructors can use to prepare independently for their roles as instructors. Further, provide resources so that institutions can offer their own professional development. Finally, provide common templates and documents that all instructors can modify to create instructional planning documents. (Hudson, 2021).

Tennessee State Contact Resources

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Planning Worksheet for Administrators

INSTRUCTIONS: Print out this page or save to write down notes and takeaways.

State	Takeaways