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Purpose: Contextualize the statewide push to develop CTE programs, summarize research on the impact of CTE programs on student outcomes, and provide an overview and evaluation of existing CTE programs in New Mexico.

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Expected Outcome: Gain a better understanding of how to establish effective CTE programs.

Establishing Effective Career Technical Education Programs

To improve the availability of options for New Mexico students, stakeholders and policymakers across New Mexico are working to rebuild career and technical education (CTE) programs in the state. Many school districts and charter schools currently offer CTE courses to their students or are in the process of developing courses. However, access to CTE programs varies by region, programs are siloed, and few existing programs contain all of the elements identified by national researchers as essential to effective CTE. These facts, combined with industry demand for skilled workers, have made CTE a focus of the Legislature and the executive.

During the 2019 legislative session, three bills related to CTE were enacted. Laws 2019, Chapter 61 (House Bill 91) establishes a seven-year CTE pilot project and a corresponding fund. Laws 2019, Chapter 2 (House Bill 44) directs the Public Education Department (PED) to develop a framework for professional development that includes CTE teachers and educational assistants. Laws 2019, Chapter 148 (House Bill 664) allows students to substitute a relevant CTE course for a required credit in mathematics, English, or science. Establishing college and career pathways is also one of four strategic goals identified by PED. This goal encompasses several corresponding initiatives, including developing “vibrant career technical education programs across the state.”

When the Legislature originally developed the public school funding formula in 1974, it contained a specific component for vocational education. Over time, however, school districts shifted their focus away from vocational education and toward college preparation, and the number of vocational courses offered in schools declined. The Legislature amended the Public School Finance Act in the 1976 legislative session to roll the program unit for vocational programs into the basic program unit for high school students.

The 1976 amendment to the Public School Finance Act repealed the cost differential factor of 0.8 for vocational education programs, but increased the cost differential factor for 7th grade through 12th grade students from 1.2 to 1.25. The increase reflected the assumption that most 7th grade through 12th grade students participated in vocational education programs.

This brief outlines national research on the benefits of CTE programs, reviews best practices for establishing effective CTE programs, and provides an overview and evaluation of the current landscape of CTE programming in New Mexico.

The Value of CTE

Nearly all countries with high-performing education systems offer robust CTE programs and studies show participation in CTE can have positive effects on student outcomes, while providing students with specialized vocational training can help meet current and future workforce needs. The National Conference of State Legislatures' (NCSL) report, *No Time to Lose*, notes CTE has experienced “steady decline” in the United States in the last few decades, but countries with high-performing education systems, such as Singapore and Switzerland, have “strong systems of CTE with close ties to industry.” In such countries, “CTE is well-funded, academically challenging and aligned with real workforce needs.” NCSL encourages states to learn from nations with well-designed education systems and explore ways to adapt effective policies and practices to their own education programs, such as implementing highly effective and rigorous systems of CTE.

Research suggests that participating in CTE programs has a positive effect on student performance. Vanderbilt University conducted a study of CTE at regional vocational and technical schools in Massachusetts and found students participating in CTE were 10 percent more likely to graduate from high school and 5 percent more likely to earn

Developed by the National Center for College and Career (ConnectED), “Linked Learning” is an approach to educational reform that combines core academics, CTE instruction, work-based learning, and integrated student supports. The model emphasizes drawing connections between courses as well as between the classroom and the world of work.

industry-recognized credentials, as compared with students who did not participate. The National Research Center for Career and Technical Education analyzed CTE programs of study in three urban school districts across three states and established links between participation in CTE and improved likelihood of graduation, increased GPA, and greater propensity of students to pursue post-secondary education in the same field. Finally, the Center for Education Policy at SRI International evaluated the “Linked Learning” CTE model in California. The study found students who participated in Linked Learning certified pathways were more likely to graduate from high school and more likely to report that a counselor or other adult encouraged them to pursue post-secondary education. These students also reported higher subsequent job quality than their peers. The positive effects of Linked Learning were especially pronounced for African American students, English learners, and lower-achieving students.

CTE can boost the state economy by connecting students with high-paying jobs. Currently, stakeholders report difficulty finding qualified local candidates to fill high-demand positions. Tailoring CTE programs to local workforce needs can help address this gap. Moreover, training well-educated and highly-skilled workers will help keep New Mexico competitive in a rapidly changing economy. Georgetown University's Center on Education and the Workforce reports 65 percent of job openings through 2020 will require some form of postsecondary training. By placing students on college and career pathways in high school or earlier, CTE programs can encourage students to pursue post-secondary education in fields that correspond to high-demand jobs. According to the U.S. Bureau of Labor Statistics, employment sectors such as engineering, health, energy, and information technology are projected to grow significantly through 2026.



Characteristics of Effective CTE Programs

Models of effective CTE programs in other states demonstrate that offering one or two standalone CTE courses in a school is ineffective. At regional vocational and technical schools in Massachusetts, for example, students alternate between full-time academic courses and full-time CTE work, a model found by Vanderbilt University to be more effective than CTE programming in traditional schools. Several other states use a model that centers on ‘programs of study,” an aligned sequence of courses that spans secondary and postsecondary education and should result in the acquisition of an industry-recognized credential. Johns Hopkins University Institute for Education Policy finds programs of study are more impactful on student outcomes than standalone CTE courses. Students should have the opportunity to participate in intensive CTE programs that include pathways to postsecondary training, rather than isolated CTE courses without clear applications beyond high school. To be successful CTE programs must meet these and other minimum criteria. The Linked Learning model, used by more than 100 school districts in California, is effective because it integrates four elements identified by the National Center for College and Career (ConnectED) as essential to a comprehensive CTE program of study:

- *Rigorous Academics* – ensure CTE serves as a complement to traditional academic courses, rather than a substitute;
- *Real-World Technical Skills* – CTE programs should impart knowledge and skills with clear connections to the practical world of work;
- *Work-Based Learning* – school districts and charter schools should offer a series of work-based learning opportunities that begin with mentorship and job shadowing and evolve into internships and apprenticeships; and
- *Personalized Student Supports* – college and career guidance, academic counseling, and supplemental instruction in weak content areas.

Developing partnerships with industry and higher education institutions is essential to providing opportunities for work-based learning. School-based enterprises can be appropriate venues for certain programs, such as culinary arts or business, but it is important to connect students with potential employers. Helping CTE students to transition directly from high school into a job increases the relevance of their education and helps address gaps in the workforce. Due to the importance of such partnerships, educators should seek industry input when developing standards for CTE programs.

Another mechanism to encourage the development of successful CTE programs is to create funding incentives. Based on a study of CTE funding in several states, the Foundation for Excellence in Education recommends state governments create tiered funding structures to prioritize funding for students enrolled in high-value courses. A CTE course can be considered high-value if it leads to a high-wage job or addresses local workforce needs. The Foundation for Excellence in Education also suggests states link a portion of funding to actual student performance, for example offering additional funding for every student who attains an industry-approved certification. Additionally, lawmakers can use funding streams to encourage partnerships between

In countries such as Singapore and Switzerland CTE programs serve not as an alternative for students with low academic skills, but as another approach to education. Similarly, CTE programs do not lead students toward “dead-ends,” but contain pathways for students to transition to universities if they choose. CTE programs in such countries reflect local workforce needs and connect students to employment opportunities.

education institutions and employers, such as tax incentives for companies that give internships to CTE students.

CTE in New Mexico

Two bills were enacted during the 2019 legislative session that govern the creation of new CTE programs and the training and professional development of CTE instructors: Laws 2019, Chapter 61 (House Bill 91) and Laws 2019, Chapter 2 (House Bill 44). In addition, the Legislature included two CTE-related appropriations in the General Appropriations Act of 2019 (GAA): a \$3 million Section 4 appropriation and a \$2 million Section 5 appropriation.

House Bill 91

HB91 enacted Sections 22-1-12 and 22-1-13 NMSA 1978, which established a CTE pilot project and created a CTE fund. The bill authorizes PED to make grants to school districts and charter schools to establish CTE programs or provide professional development and training to CTE teachers. HB91 stipulates CTE programs funded as part of the pilot project shall, at a minimum:

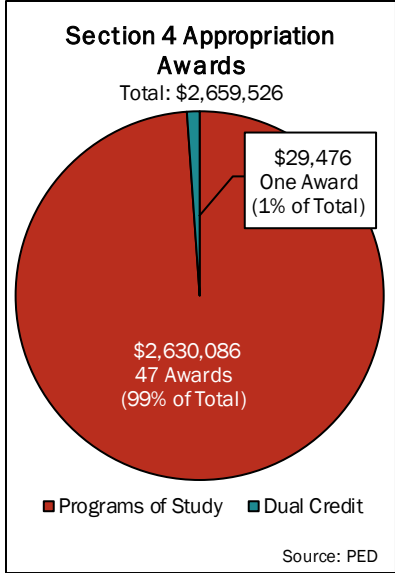
- Include rigorous academic standards and CTE content aligned with post-secondary education;
- Incorporate pathways to post-secondary education;
- Provide students the opportunity to take dual credit courses;
- Require competency in science, technology, engineering, and mathematics (STEM);
- Require training in soft and social skills;
- Lead to an industry-recognized credential or an associate's or bachelor's degree;
- Establish partnerships among school districts and charter schools, institutions of higher education, and local business and industry; and
- Provide PED with the data necessary to evaluate the program.

HB91 also sets forth guidelines for training and professional development for CTE instructors and requires the training address: project-based learning, basic pedagogy, integration of CTE content with core content, employability and soft skills instruction, social-emotional learning and trauma-informed instruction, and PED standards for CTE.

HB91 includes key criteria for effective CTE programs such as rigorous academics, relevant technical instruction, and pathways to postsecondary education. However, essential elements such as opportunities for work-based learning and student supports are missing.

Section 4 Appropriation. The GAA included a \$3 million recurring general fund appropriation contingent on enactment of HB91, though the GAA language for the appropriation does not reflect the minimum program requirements of HB91 listed above. The appropriation reads; “A school district or charter school may submit an application to the public education department for an allocation from the career technical education pilot appropriation to develop a new industry-validated career pathway aligned to department-approved academic content and performance standards.”

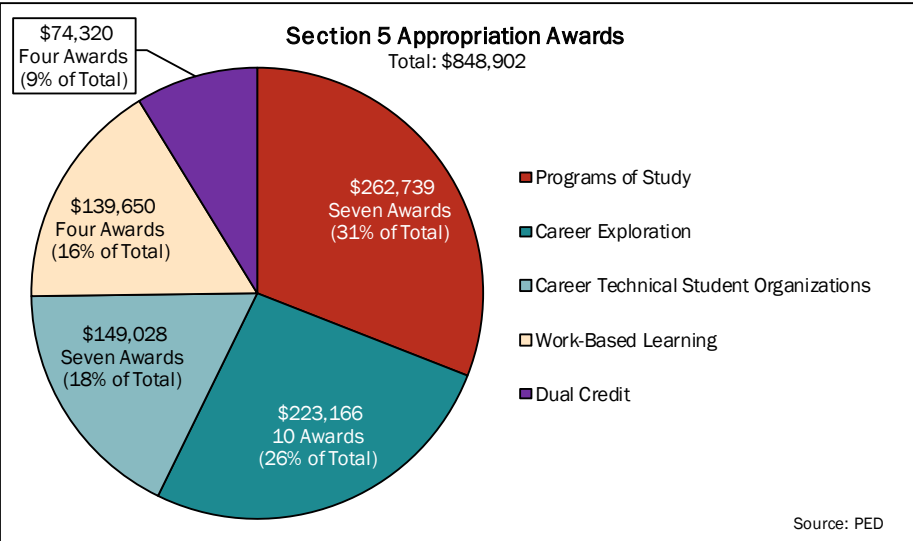
To date, PED has made grants totaling \$2.6 million to 32 entities pursuant to this appropriation. These grants encompass 48 individual awards, 47 of which are intended to fund the creation of new programs of study in CTE fields. PED made one award to support dual credit courses, which does not appear to comply with the criteria established in the GAA or the Legislature’s intent to fund CTE programs that comply with HB91. PED also issued two contracts pursuant to this appropriation totaling \$232 thousand: \$83 thousand to Eastern New Mexico University to support career technical student organizations and nearly \$150 thousand to BVM Technology Associates, Inc. to provide IT services to PED’s College and Career Readiness Bureau. These contracts do not appear to meet the requirements of the GAA or HB91, as they are not intended to establish CTE programs or provide professional development to CTE instructors. Additionally, HB91 states that PED may make grants to school districts and charter schools, but does not identify institutions of higher education or private entities as potential grant recipients.



Section 5 Appropriation. The GAA also included a \$2 million nonrecurring general fund appropriation to “pilot a career technical education program, including an online supplemental learning system that integrates algebra and geometry into career technical education studies, and to teach online workplace soft skills for high school students.”

The request for information (RFI) PED issued for the CTE pilot project outlines several “tier one” programs of study. These programs include between two and four high school courses followed by a capstone course, which may take the form of a dual credit course, work-based learning, or an advanced placement course.

PED has made grants totaling just under \$850 thousand to 20 entities pursuant to this appropriation. These grants encompass 32 individual awards: 10 for career exploration, seven for new programs of study in CTE fields, seven to support career technical student organizations, four for dual credit courses, and four to fund work-based learning opportunities. Though many of these awards are intended to fund one or more of the minimum CTE program requirements outlined in HB91, in general they do not appear to meet the criteria established in the GAA or the Legislature’s intent to fund CTE programs that comply with HB91. PED also issued two contracts pursuant to this appropriation totaling nearly \$779 thousand: \$62 thousand to Regional Education Cooperative (REC) IX for CTE examinations and \$716 thousand to REC III for a new Project ECHO CTE program and integration of algebra and geometry into CTE instruction. The REC III contract appears to comply with the language of the Section 5 GAA appropriation, but neither contract appears to satisfy the Legislature’s intent to fund CTE programs that comply with HB91.



The language for the two CTE-related appropriations in the GAA does not state that the appropriations are intended to carry out the provisions of HB91. PED can therefore exercise considerable discretion in allocating CTE pilot project funds, though the Legislature intended the appropriations to fund programs that meet the criteria set forth in HB91 and HB44. The Legislature may want to consider including more exact language in the GAA to ensure CTE-related appropriations are made to carry out the provisions of HB91 and HB44.

House Bill 44

HB44 directs PED to develop a framework for professional development that includes guidelines for integrating CTE into academic instructional practices and guidelines for funding rigorous professional development for CTE teachers. HB44 contains no appropriation, but directs PED and school districts to use “all available funding sources,” including federal Every Student Succeeds Act Title 2 funding, to provide professional development for CTE teachers and educational assistants.

Perkins V Funds

School districts and charter schools may also receive funds through the federal Strengthening Career and Technical Education for the 21st Century Act (Perkins V) for their CTE programs. PED has not published information on how the department is allocating these dollars for FY20. The Foundation for Excellence in Education notes that states may set aside up to 15 percent of the portion of their Perkins V allocation earmarked for local recipients, and recommends states use these reserve funds to prioritize start-up costs for new CTE programs of study and professional development for CTE instructors. In addition, the Foundation for Excellence in Education encourages state lawmakers to align state and federal CTE funding streams.

Perkins V legislation is intended to expand opportunities for every student to explore, choose, and follow career and technical education programs of study and career pathways to earn credentials of value.

Conclusion

The state’s renewed focus on CTE has the potential to improve student success and bolster New Mexico’s economy. However, state policymakers must continue to work to ensure CTE programs are effective. CTE programs should blend rigorous academic instruction and practical technical skills, provide opportunities for work-based learning such as apprenticeships, include wraparound student supports including counseling and advisement, and establish permeable pathways to college and career. Based on available information, it is difficult to determine if CTE programs in the state contain all four of these crucial elements. Sections 22-1-12 and 22-1-13 NMSA 1978, enacted by HB91, already include criteria for rigorous academics and practical technical instruction, but do not explicitly address work-based learning or student supports. The Legislature may want to consider amending these sections to include these requirements. In addition, the Legislature may want to consider including tighter language in the GAA to ensure CTE funding meets the requirements of HB91 if funds are appropriated to develop new programs pursuant to HB91.