



Examining High School Career and Technical Education Programs and the Postsecondary Outcomes of Career and Technical Education Students in the Round Rock Independent School District

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Executive Summary

Round Rock Independent School District (ISD) wanted to enhance its high school career and technical education (CTE) programming to prepare CTE graduates to either enter high-wage, in-demand careers in Central Texas or continue their education after high school. However, district leaders lacked key information about the district's CTE programming and their CTE graduates' postsecondary performance. In response to a request from the Round Rock ISD, this study investigated the percentage of Round Rock ISD graduates from 2012/13 through 2017/18 who completed one or more career and technical education (CTE) programs of study. The study also examined the percentage of CTE programs of study in Round Rock ISD that were aligned with high wage, in demand career pathways in Central Texas, plus the postsecondary outcomes of these graduates who completed a program of study. Key study findings include the following:

- The percentage of students who graduated with one or more CTE programs of study increased more than 10 fold across the six graduating cohorts, from 4 percent for the 2012/13 cohort to 47 percent for the 2017/18 cohort.
- Seventy-six percent of the CTE graduates completed course requirements in the 13 programs of study aligned with regional high wage, in demand career pathways in the Central Texas labor market.
- More than 80 percent of the CTE graduates from each cohort enrolled in two or four year colleges or were employed within one year of high school graduation.

What We Studied

In July 2019, the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) went into effect, changing the way that states implement career and technical education (CTE) programs. Perkins V emphasizes improving CTE program quality by asking state and local education agencies to align CTE programs of study with the needs of industries in the region, community, or local area and incorporate rigorous academic and industry-recognized skill standards into programs of study to improve access to high-quality career paths after high school (Advance CTE & ACTE, 2018; Garcia, 2018). To echo Perkins V, Round Rock ISD wanted to enhance its high school CTE programming to prepare CTE graduates to either enter high-wage, in-demand careers in Central Texas or continue their education after high school. However, district leaders lacked key information about the district's CTE programming. Specifically, they were interested in the alignment of their CTE programs of study to regional high-wage, in-demand careers and the preparation of their CTE graduates to step into such careers relative to other CTE graduates in Central Texas. District leaders also lacked information on the postsecondary outcomes of their CTE graduates to inform recommendations to the district school board, including making recommendations to open a CTE high school that

would allow the district to offer additional programs of study, offer specialty courses not currently within the programs, and fund state-of-the-art equipment that would be difficult to replicate across all high schools.

As a suburban district in Austin, Texas, Round Rock ISD serves approximately 48,000 students and offers CTE programs to its high school students. In 2019/20, the district offered 33 CTE programs of study in 14 of the 16 federally defined career clusters. All high school students in the district can select a CTE program of study as part of their four-year high school graduation plan and can complete that program by earning three or more CTE credits in a program of study. Not all programs of study are offered at each high school. However, students can attend any program, even if it is not offered in their zoned high school. For example, six of the 33 programs of study were offered at every high school, including Business Management & Administration, Biomedical Sciences, Health Science Theory and Practice, Marketing, Computer Science, and Engineering. Nine programs of study were offered at only one high school. More than half of all Round Rock ISD graduates enroll in a Texas public college; however, from 2013 to 2017, the two-year college enrollment rates of their graduates decreased by 4 percentage points, and four-year college enrollment rates remained steady during the same time period (Texas Public Education Information Resource, 2019). District leaders suspected that this decrease in enrollment was from CTE graduates and wanted to take the opportunity, based on changes from the Strengthening Career and Technical Education for the 21st Century Act (Perkins V), to rethink their CTE programming.

This study investigated the percentage of Round Rock ISD graduates who completed CTE programs of study and the percentage of these CTE programs that were aligned with high-wage, in-demand career pathways in the Central Texas labor market. The study also investigated the percentage of CTE graduates who completed CTE programs of study in high-wage, in-demand career pathways, plus the postsecondary outcomes of CTE graduates. Round Rock ISD leaders can use the study findings to make recommendations to the district school board to enhance CTE programs, including the possibility of centralizing CTE programs in a new CTE high school that could support Round Rock ISD and other districts in Central Texas. District leaders want to improve access to CTE programs and support course offerings and pathways that may result in better postsecondary preparation and outcomes for students and align with high-wage, in-demand careers in the Central Texas region.

How We Analyzed the Data

This study addressed four research questions:

1. What percentage of Round Rock ISD graduates from 2012/13 through 2017/18 completed one or more CTE programs of study?
 - a) How do the demographic characteristics of CTE graduates compare with those of all district graduates?
 - b) In what career clusters did CTE graduates complete programs of study?
 - c) Among CTE graduates, what percentage earned an industry based certification? Did the percentage differ by CTE career clusters?
2. What percentage of CTE programs of study in Round Rock ISD and other districts in Central Texas in 2015/16 through 2017/18 were aligned with high wage, in demand career pathways in the Central Texas labor market? What percentage of CTE graduates completed CTE programs of study aligned with high-wage, in-demand career pathways?
3. What percentage of 2012/13 through 2016/17 Round Rock ISD CTE graduates enrolled in college or were employed or both? Did these percentages change across cohorts and differ by CTE career cluster?
4. What percentage of 2012/13 through 2016/17 Round Rock ISD CTE graduates attained a college credential?

To answer questions, the study examined six cohorts of students from 2012/13 through 2017/18 who graduated from the Round Rock ISD. The size of the cohorts ranged from 2,912 graduates in 2012/13 to 3,421 graduates in 2017/18. The analytic sample used to address research question 1 included all six cohorts. The analytic sample used to address

research question 2 was limited to the three most recent cohorts of CTE graduates (2015/16 - 2017/18) because those cohorts covered the same time period as the labor market projections. The analytic sample used to address research questions 3 and 4 included the first five cohorts of CTE graduates because no postsecondary information was available at the time of analyses for the 2017/18 graduates.

The research team used descriptive statistics to answer all research questions. To address research question 1, the team calculated the percentage of Round Rock ISD CTE graduates by student demographic characteristics and career cluster. To address research question 2, the research team calculated the percentage of CTE programs of study aligned with high wage, in demand career pathways in Central Texas and CTE graduates in programs that aligned with projected high wage, in demand career pathways in the Central Texas labor market for Round Rock ISD and 41 surrounding Central Texas districts. First, the research team crosswalked Standard Occupational Classification codes to one of the 79 career cluster pathways. Second, based on the occupations in the career pathway, the team calculated the average median annual salary of the career pathway, the projected percentage growth of the career pathway during 2016–26, and the average annual Central Texas number of job openings for the career pathway. Finally, the team identified high wage, in demand career pathways using the three occupational thresholds that the Texas Education Agency established for its statewide programs of study (Texas Education Agency, 2019). For research questions 3 and 4, the research team tracked CTE graduates' college enrollment, and employment up to five years after high school graduation.

What We Discovered

This section summarizes the main findings from the four research questions.

The percentage of Round Rock Independent School District graduates who completed one or more career and technical education programs of study in high school increased each year

The percentage of students who graduated with one or more CTE programs of study increased more than 10-fold across the six graduating cohorts, from 4 percent for the 2012/13 cohort to 47 percent for the 2017/18 cohort. Of Round Rock ISD graduates in 2017/18, a lower percentage of students in historically disadvantaged groups were CTE graduates. Forty-one percent of students who were economically disadvantaged were CTE graduates compared with 49.2 percent of students who were not economically disadvantaged. Fewer students in special education (33.2 percent) and English learner students (23.2 percent) were CTE graduates than students not in special education programs (48.7 percent) and non-English learner students (48.6 percent). In terms of race/ethnicity, less than half of African American and Hispanic students (42.3 and 45.6 percent, respectively) were CTE graduates, and slightly more than half of Asian students (52.4 percent) were CTE graduates.

The majority of Round Rock Independent School District career and technical education graduates in each cohort had completed programs of study in the Health Science or the Science, Technology, Engineering & Mathematics career clusters

Across the six graduating cohorts examined, more than 40 percent of CTE graduates completed a program of study in the Health Science career cluster. The Health Science plus Science, Technology, Engineering & Mathematics career clusters ranked in the top three career clusters each year out of 14 total clusters offered in Round Rock ISD, comprising more than 50 percent of CTE graduates each year. Three other career clusters represent the top three in one or more of the years examined, including Law, Public Safety, Corrections & Security; Business Management and Administration; and Arts, A/V Technology & Communications.

Eighteen percent of 2017/18 Round Rock Independent School District career and technical education graduates earned at least one industry-based certification before graduating from high school

Eighteen percent of the 2017/18 CTE graduates (the only cohort with available data) earned industry-based certifications. CTE graduates earned industry-based certifications in 11 of the 14 career clusters offered in Round Rock

ISD, with the largest number of CTE graduates earning certifications in the Health Science career cluster. The percentage of CTE graduates who earned industry-based certifications varied across career clusters. CTE graduates who completed programs of study in the Architecture & Construction career cluster earned the highest percentage of industry-based certifications (31 percent).

Thirteen of 32 career and technical education programs of study completed by Round Rock Independent School District graduates aligned with high-wage, in-demand career pathways. Seventy-six percent of Round Rock Independent School District career and technical education graduates had completed programs of study aligned with high wage, in demand career pathways

Of the 73 career pathways crosswalked to all occupations in Central Texas, 13 Round Rock CTE programs of study were high-wage, in-demand career pathways in Central Texas. Among three cohorts of Round Rock ISD CTE graduates (2015/16 - 2017/18), 76 percent completed at least one of the 13 programs of study aligned with high-wage, in-demand career pathways in the Central Texas labor market. The largest percentage of CTE graduates completing programs of study aligned with high-wage, in-demand career pathways was in the Health Science Theory and Practice program of study.

Of the 32 districts offering CTE in Central Texas, including Round Rock ISD, only five districts had more than five programs aligned to high-wage, in-demand career pathways, and seven districts had only one aligned program of study. Ninety-three percent of CTE graduates from Prairie Lea ISD completed programs of study aligned with high-wage, in-demand career pathways—the highest percentage among the districts examined. More than 65 percent of CTE graduates from Round Rock ISD, San Marcos Consolidated ISD, Lockhart ISD, and Lago Vista ISD completed programs of study aligned with high-wage, in-demand career pathways.

Four-year college enrollment rates decreased among Round Rock Independent School District career and technical education graduates while two-year college enrollment rates remained stable

Combined two- and four-year college enrollment rates within one year of graduation decreased from 75 percent for the 2012/13 cohort to 62 percent for the 2016/17 cohort of CTE graduates, although the number of CTE graduates in the earlier cohorts was small. The two-year enrollment rate remained relatively stable, whereas the four-year enrollment rate decreased during the last five CTE graduating cohorts. Combined two- and four-year college enrollment rates increased for each cohort the longer CTE graduates were followed postgraduation, with a more than 5 percentage point increase in enrollment rates for the first two cohorts five and four years after high school graduation, respectively.

Employment rates within one year of high school graduation remained stable across Round Rock Independent School District career and technical education graduating cohorts

Employment among CTE graduates within one year of high school graduation ranged from 67 percent to 71 percent of CTE graduates across the years examined. As expected, the longer CTE graduates were followed postgraduation, the higher the percentage of students employed across all cohorts.

The percentage of Round Rock Independent School District career and technical education graduates who were enrolled or employed within one year of high school graduation varied across career clusters

Of all CTE students who graduated during the past five years, the 4 percent of CTE students who graduated within the Education & Training career cluster had the highest percentage (91 percent) of graduates enrolled in two- or four-year colleges, employed, or both within one year of high school graduation. The Health Sciences career cluster, which represented 45 percent of CTE graduates, had the second highest percentage (86 percent) of CTE graduates enrolled in a two- or four-year college, employed, or both. The Human Services career cluster had the highest percentage of CTE graduates employed only (46 percent).

Few Round Rock Independent School District career and technical education graduates earned postsecondary degrees or certificates within the first three years of high school graduation

Less than 5 percent of CTE graduates in the 2012/13 through 2014/15 cohorts earned college degrees or certificates within the first three years after high school graduation. The percentage of CTE graduates earning degrees or certificates increased to 23 percent (2012/13 cohort) and 27 percent (2013/14 cohort) within four years of high school graduation and to 40 percent (2012/13 cohort) within five years of graduation. A greater share of CTE graduates in 2012/13 through 2014/15 earned college degrees or certificates than high school graduates across Texas.

Discussion/Policy Recommendations

Round Rock ISD leaders could use the information on the percentage of graduates and the demographic characteristics of graduates who completed CTE to encourage participation in CTE by all student groups. Almost half of 2017/18 Round Rock ISD graduates completed at least one CTE program of study, demonstrating the popularity of CTE to district students and the necessity of improving CTE programming for future career success. An exploration of potential barriers that prevent students from disadvantaged subgroups, including African American and Hispanic students, students in special education and students who are economically disadvantaged, from participating in CTE programs may inform efforts to recruit additional students from historically disadvantaged groups into CTE.

Round Rock ISD leaders could use the results regarding CTE programs of study completed by graduates during the past six years and the alignment of those programs to high-wage, in-demand career pathways in Central Texas to refine the CTE programs of study they offer. Seven programs of study had 10 or fewer students graduating within a program of study in the past six years. District leaders may consider these results when examining programs of study that were less popular and not in high-wage, in-demand career pathways (for example, Fashion Design, Floral Design, and Print Shop) to improve efficiencies and repurpose resources to more popular CTE programs, especially those aligned with high-wage, in-demand career pathways. District leaders also could use the results to identify aligned programs of study that were less popular (for example, Human Service, Construction Technology, Biotechnology, and Computer Science) and launch a campaign to expand enrollment in those least populated programs of study. District leaders also may consider promoting programs of study aligned with high-wage, in-demand career pathways to expose families and students to new pathways they might not have been aware of and partnering with local organizations to open up work-based learning opportunities for students in high-wage, in-demand career pathways.

Although stable during the study period, the low two-year enrollment rates and the increase in the percentage of students employed only suggests that Round Rock ISD leaders consider activities to encourage postsecondary enrollment and completion. District leaders could demonstrate for students and families which colleges and universities in the region have credentials in high-wage, in-demand programs of study. Round Rock ISD could also work with Austin Community College (ACC) to align more of the high-wage, in-demand programs to its Articulated Credit programs to assist students in making a smooth transition from high school to postsecondary or have ACC create more dual-credit CTE courses. Obtaining college credits in high school could allow students to complete their postsecondary education sooner and enter the job market with advanced skills and a credential. For students who want to enter the labor market right after high school, district leaders could highlight the occupations that do not require a bachelor's degree from high-wage, in-demand programs of study. District leaders also could promote to students and families the benefits of earning an industry-based certification, which can further support students in transitioning to the workforce.

Finally, findings from the study provide information to inform Round Rock ISD leaders as they consider opening a CTE high school. Round Rock ISD leaders could gauge student interest in programs of study that are not currently offered but are aligned to high-wage, in-demand career pathways. For example, district leaders could offer Maintenance/Operations within the Architecture & Construction career cluster or Professional Support Services in the Education & Training career cluster if there was sufficient demand. The Health Science plus the Science, Technology, Engineering & Mathematics career clusters represent the largest number of CTE graduates and are offered in each Round Rock ISD high school. These two programs of study also aligned to high-wage, in-demand career pathways, and more than 85 percent of Health Sciences graduates enrolled in two- or four-year college and/or were employed

within one year of graduation. Science, Technology, Engineering & Mathematics also represented the highest percentage of CTE graduates enrolled in two- or four-year colleges. Opening a CTE high school could allow Round Rock ISD to offer specialty Health Science courses and programs not currently offered.

References

- Advance CTE & ACTE. (2018). *Legislative summary and analysis: Strengthening Career and Technical Education for the 21st Century Act (Perkins V)*. Retrieved September 22, 2020, from https://www.acteonline.org/wp-content/uploads/2018/08/AdvanceCTE_ACTE_P.L.115-224Summary_Updated080618.pdf.
- Garcia, F. (2018). *New Perkins V law passed: Now what for CTE?* Retrieved September 22, 2020, from <https://blog.edmentum.com/new-perkins-v-law-passed-now-what-cte>.
Strengthening Career and Technical Education for the 21st Century Act (Perkins V), Pub. Law No. 115-224 (2018).
- Texas Education Agency. (2019). *Programs of study overview*. Retrieved September 22, 2020, from https://tea.texas.gov/sites/default/files/Programs_of_Study_Overview_9_06_2019_Final.pdf.
- Texas Public Education Information Resource. (2019). *High school graduates enrolled in higher education by school district*. Retrieved September 22, 2020, from <http://www.texaseducationinfo.org/Home/Index/>.

To access the full, public report¹:

<https://ies.ed.gov/ncee/edlabs/projects/project.asp?projectID=6700>

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