Learning for the Future, Building From the Past:

An Evaluation of a Texas Career and Technical Education Program

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ABOUT THE AUTHORS

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ACKNOWLEDGEMENTS

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Although the town of Capstone has long desired to avoid being a suburb of the nearest city, they are faced with the reality of rapid metropolitan expansion because they offer more affordable housing, a lower cost of living, and the relocation of a major auto manufacturing company to the area. As a result of this expansion, the growing school community is anticipating a rapid influx of residents and a potential massive growth in the size of the school district.

The Capstone Independent School District (CISD)[1] serves approximately 12,000 students living in communities ranging from suburban to vast rural densities covering nearly 450 square miles. The school district has two comprehensive high schools, an early college high school, and a non-traditional online high school. CISD currently offers a Career and Technical Education (CTE) program that is open to all students. The expected growth of the town contributes to the increased focus and appreciation for the benefits of CTE for students in the CISD because of the increased employment opportunities across a number of sectors. Over the past five years, the CISD CTE program has produced a participation rate of 70% of students in grades 9-12. However, the career pathway student completion rate has been approximately 35%. The CISD district leadership would like to understand the factors influencing these trends and adopt new strategies designed to achieve a higher completion rate.

We set out to conduct a program evaluation to identify the factors that shape students' decisions to enroll in CTE; persist (or not) in the CTE program; and to describe the conditions and contexts that support students' personal, academic, and career goals. Our research focused on answering the following questions.

1. To what extent are students who enroll in a CTE Pathway their freshman (1st) year completing that CTE Pathway in their 4th year?
2. What factors influence a student's decision to enroll in a CTE course and/or CTE pathway?
3. What factors influence departure from or completion of a CTE pathway?
4. What benefits do students gain from participating in the CTE program?

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[1] The pseudonym *Capstone Independent School District* is used to maintain confidentiality of our research site. Names of the town and high schools have also been changed to maintain confidentiality.

This report details our process for gathering data and analyzing data using a mixed-method approach. The quantitative data gathered from district data and student and teacher surveys helped us understand the factors that influence a student's decision to enroll and persist in a CTE pathway and to investigate the benefits that students gain from participating in the CTE program. Qualitative data from interviews with students, teachers, and staff was analyzed to unpack students' experiences in the CTE program in a deep and complete manner. We planned for our work to assist the CISD CTE leadership team to make adjustments to their program that will improve student completion rates, increase the "post high school credentialing for all" mission, and meet the goals the district has articulated. The following recommendations are discussed in more detail in our report.

Immediate Recommendations (1-3 months)

1. Develop processes to collect and track CTE student participation data by sub groups (e.g. race, ethnicity, economically disadvantaged, special education) to ensure equitable access.
2. Launch a district-wide education campaign around the mission and vision for CTE.
3. Convene a committee of building-level administrators and CTE teachers to evaluate the perception of CTE in the high schools.
4. Explore alternative definitions of CTE Pathway success beyond "completion" of a pathway.

Extended Recommendations (12-24 months)

5. Appoint an Assistant Principal for CTE at each high school in order to:
   a. Oversee the implementation of the CTE program at the school
   b. Monitor course scheduling and teacher workload
   c. Oversee the CTE budget, including the purchasing of CTE materials
   d. Oversee CTE teacher evaluations and execution of professional development for CTE teachers
   e. Leverage CTE to increase students' sense of belonging

Other important tasks that the District CTE personnel should oversee include:

6. Create and execute an annual process for surveying students about their career interests and tailor CTE pathway offerings to those interests as well as market trends, labor shortages, and local needs.
7. Implement an annual training and support colloquium for counselors and principals.
8. Maintain relationships with, and collect data about, CTE alumni.

DEFINITION OF THE ISSUE AND RESEARCH QUESTIONS

Organizational Background

The Capstone Independent School District (CISD) is a sprawling public school system in picturesque Central Texas. A beautiful river runs through the city that is conveniently nestled just 30 miles outside of a major, growing metropolis, and is centrally located between two other major Texas cities. CISD serves approximately 12,000 students living in communities ranging from suburban to vast rural densities covering nearly 450 square miles. The school district has two comprehensive high schools, an early college high school, and a non-traditional online high school. There are also two middle schools (grades 7 and 8), two intermediate schools (grades 5 and 6), and six elementary schools (grades pre-K through 4).

According to the district demographic report (2021), over the past 10 years, CISD's student population has grown by roughly 24%, and is projected to grow at a rate of over 60% over the next 10 years. The school community is 77% students of color, with 71% Hispanic-Latino. The district has 68% of students receiving Free or Reduced Priced Meals. Sixty-six percent of students are considered At-Risk with 34% of the student population identified as Limited English Proficient. The district is rated as a "B" district academically by the state of Texas (TEA, 2019). The high school graduation rate exceeds the regional and state averages at 96%.

Program Narrative

CISD offers a Career and Technical Education (CTE) program open to all students. The CISD CTE website outlines the programs of study offered by the district. The CISD provides instruction and training in multiple career pathways, including, but not limited to: Agriculture, Food & Natural Resources; Architecture & Construction; Arts, Audio/Video Technology, & Communications; Business Marketing, & Finance; Education & Training; Health Science; Hospitality & Tourism; Law, Public Safety, Corrections, & Security; Science, Technology, Engineering, & Math; and Transportation, Distribution, & Logistics. CISD is working to improve the program outcomes to not only address the academic and technical-workplace interests of students but to also meet the labor force demands of the growing Capstone business community. This industrial growth currently features occupational opportunities that are highly

concentrated in skilled, high-wage industries that often demand credentials beyond a high school diploma, including industry certifications, trade-school certifications, and completion of junior college program certifications. CISD is working to offer CTE opportunities that reflect the skills necessary to enter this growing workforce in their community and beyond. It is their hope to transition from the "college for all" rhetoric to a "post high-school credential for all" mindset which aligns with the research presented in *Pathways to Prosperity* (Symonds, Schwartz & Ferguson, 2011).

Evaluation Purpose

In the initial meetings with the CISD team, our project team was made aware of their concerns about their CTE program, with specific reference to student *completion* rates compared to student *participation* rates. Over the past five years, the CISD CTE program has produced a participation rate of 70% of students in grades 9-12. Conversely, over this same period of time, the career pathway student completion rate has been approximately 35% (CISD Administration, personal communication, June 2021). The CISD team would like to understand the factors influencing these trends and the best steps they can take to see a higher completion rate.

In reviewing the CISD website and in conversations with program leaders, we learned that the CTE program operates from an underlying theory that has two objectives. First, the program provides students the opportunities to develop the academic and technical skills for an increasingly competitive job market. Second, CTE programs contribute to students' personal flourishing by allowing them access to key experiences that foster self-awareness, a better understanding of their career goals, and professional interests.

Research Questions

Our team worked to formulate the scope of this project based on the guidance and feedback we received from the CISD team. Through our team collaboration and follow-up meetings with the CISD team, we focused this project on answering the following questions.

1. To what extent are students who enroll in a CTE Pathway their freshman (1st) year completing that CTE Pathway in their 4th year?

2. What factors influence a student's decision to enroll in a CTE course and/or CTE pathway?

3. What factors influence departure from or completion of a CTE pathway?

4. What benefits do students gain from participating in the CTE program?

Our program evaluation goal was to identify the factors that shape students' decisions to enroll in CTE; persist (or not) in the CTE program; and to describe the conditions and contexts that support students' personal, academic, and career goals. We planned for our work to ultimately help the CISD CTE leadership team make adjustments to their program that improve student completion rates, increase the "post high school credentialing for all" mission, and meet the goals the district has articulated.

Stakeholder Analysis

To evaluate this program, we engaged with a wide variety of stakeholders across all groups (users, providers, influencers and governance), with an emphasis on those most directly connected to the program: current students, teachers, counselors and program directors.

The user stakeholder group can be divided into three distinct groups: 1.) high school students currently enrolled in a CTE pathway program, 2.) high school students taking CTE courses independent of a pathway, 3.) high school students who departed from a CTE pathway program. Understanding the perspectives and experiences of current students helped us to learn more about students' readiness and confidence upon enrollment in a CTE pathway. The CISD team is interested in understanding how and why some students complete their pathways and others do not. We believe talking with students representing each of the abovementioned groups helped illuminate aspects of the experience that yield different results.

The other important stakeholder group to shed light on the information and quality of the experience are the providers themselves. Within this category, we met with teachers, principals, counselors and program directors. Our contacts at CISD provided details on the individuals who have been heavily involved in the CTE program to date. Some key individuals are counselors. Specifically, one of the counselors helped to launch the Capstone Creek High School campus and provided information on how the CTE pathways are rolled out to middle school students and

their families, as well as the advising process to help students select the best program in which to enroll.

Although both high schools in the district offer CTE pathways, due to turnover and inconsistencies with school leadership, the current directors believe one campus has a stronger CTE culture and program. To better understand these perceptions, we met with administrators at the district and school levels, as well as the former CTE directors for the district. These meetings allowed us to gain a better understanding of the differences in programming and how it might affect student retention across different pathways. We also spoke with teachers at both high schools. We wanted to gain an understanding of their professional experiences and needs regarding support and development. We connected with both teachers who teach in the full CTE pathways as well as those who teach some CTE courses but are not fully immersed in a pathway. We learned how and why students leave pathways and how the program model could better support students as they explore the CTE curriculum.

Lastly, we spoke with both influencers and individuals who impact the governance of the program. We sought opportunities to hear perspectives from district and building administrators who directly influence the program as well as any other leaders in the district who have influence on how the CTE program evolves over time. Gaining this "big picture" perspective was a helpful lens to evaluate the program through as we were able to juxtapose the "big picture" views and goals alongside the daily lived experience of the teachers' and students' in the program.

CONTEXTUAL ANALYSIS

While we have provided an overview of the school district in terms of structure, demographics, and achievement outcomes, it is important to offer an overview of the community context and the broader picture of the local opportunities on the horizon for Capstone, TX. As previously stated, Capstone is a small, rural community nestled about thirty miles outside of one of the fastest growing metropolitan areas in the United States. According to one stakeholder interview, the community has long worked to "not be a suburb of this metropolis", but due to the rapid metropolitan expansion, more affordable housing and lower living costs in Capstone, and a desire of some to live outside of the bustle of the robust city, the community is on the precipice of a rapid influx of residents and a potential massive growth in the size of the community in terms of population and geographic size. "I don't see Capstone being a small town much longer" (Admin 6, Interview).

Another factor contributing to this potential growth and expansion is that a major auto manufacturing company is in the process of relocating their business and manufacturing headquarters to the area. This also contributes to the increased focus and appreciation for the benefits of CTE for students in the CISD because of the increased employment opportunities available to local residents associated with the auto manufacturer's relocation. Not only will there be jobs associated directly with the manufacturing of the automobiles, but also there will be construction, retail, increased healthcare needs, logistics, and business just to name a few. CISD is on the verge of having a dramatic growth in population in the area and understands the importance of being a community of choice for the coming influx of residents to the area. One district level stakeholder shared the importance of the school district being an influencer attracting families to live in Capstone as opposed to other surrounding communities. "Our district wants to be a district of choice for the families moving in. Having a strong CTE program can play a big part in that" (Admin 4, Interview).

There also exists an emphasis on "changing the mindset of the community" and "preparing the community for the future." These sentiments were shared in multiple interviews and align with the impending transition facing the CISD and Capstone as a whole. CTE is widely viewed as an avenue to better prepare students to enter the workforce and earn a living wage even if college is not something that they or their families are interested in pursuing.

REVIEW OF LITERATURE

History of CTE

Career and Technical Education has existed in the United States for well over a century. It was originally referred to as "vocational education" and received initial federal funding as part of the Smith-Hughes Act of 1917, but has origins dating back to the Morrill Act of 1862 with the funding of land-grant universities to offer educational opportunities in agriculture and mechanics (Dougherty, 2016; Giani, 2019; Gottfried & Plasman, 2018; Hodge, Dougherty, & Burris, 2020). "Vocational education" has evolved and is now referred to as CTE as part of a renaming in the Carl D. Perkins Vocational Education Act reauthorization in 2006, commonly referred to as Perkins IV (Dougherty, 2016; Giani, 2019; Gottfried & Plasman, 2018; Hodge, Dougherty, & Burris, 2020). Perkins IV was designed to provide "competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, technical skills and occupation-specific skills" (Gottfried & Plasman, 2018, p. 326). CTE is intended to help students "learn skills that will help them prepare for stable careers and success in a modern, global, and competitive economy" (Dougherty, 2016, p. 1). Dougherty (2016) further states, "the goal of today's CTE is simple: to connect students with growing industries in the American economy and to give them the skills and training required for long-term success" (p. 4).

Stigma of CTE

While CTE has become more familiar in the common nomenclature of current education policy discussions, it is still associated with a stigma of a "less than" curricula and a track for those who are disinterested in school and post-secondary education (Dougherty, 2016). As stated earlier, vocational education was renamed CTE as part of the Perkins IV reauthorization in 2006. This rename was due in large part to an effort to "combat the perception that vocational education is distinct from (and inferior to) academic or college preparatory curricula" (Giani, 2019, p. 1003). Further, vocational education was often the placement for low-performing students who did not demonstrate an interest in college and were subsequently tracked into vocational education (Dougherty, 2016; Giani, 2019). Schools currently face the challenge of

trying to increase enrollments in CTE programs due to the fact that many students and parents still associate CTE with the stigma of vocational education (Dougherty, 2016, Giani, 2019).

Benefits of CTE

This stigma of vocational education being a "less than" curricula is still being addressed and combated in schools throughout the country, but tremendous advances have been made in CTE perception, funding, enrollment, participation, benefits, and outcomes (Cheng & Hitt, 2018; Dougherty, 2016; Giani, 2019; Gottfried & Plasman, 2018; Hodge, Dougherty, & Burris, 2020; Symonds, Schwartz, & Ferguson, 2011). Funding for CTE has continued through several reauthorizations of the Perkins Act with federal policy makers indicating a desire to see the continued expansion of CTE in K-12 schools and community colleges across the U.S. (Dougherty, 2016; Hodge, Dougherty, & Burris, 2020). With this expansion of CTE offerings, research is indicating positive student outcomes associated with decreasing high school dropouts and increasing on-time high school graduation (meaning within four years) (Gottfried & Plasman, 2018). The benefits of CTE participation go beyond the CTE classroom. The skills learned in association with CTE "are certainly transferable to other core academic subjects, hence further promoting skill building across domains" (Gottfried & Plasman, 2018, p. 330). Further, research indicates CTE participation is linked to increased likelihood of employment within eight years and higher wages post high school, especially for males (Cheng & Hitt, 2018; Dougherty, 2016; Dougherty, Gottfried, & Sublett, 2018). Beyond the positive outcomes of decreased drop-out rates, increased on-time graduation, and increased wages post high school, research also indicates the benefits of CTE participation in helping students improve "soft skills" such as career planning, decision-making, listening skills, integrity, creativity punctuality, positive behavior, conscientiousness, grit and self-efficacy (Cheng & Hitt, 2018; Symonds, Schwartz, & Ferguson, 2011). These are skills that are highly valued by employers and are "consistent predictors of on-the-job success" (Cheng & Hitt, 2018, p. 8).

While the above benefits are positive, the research findings are mixed in terms of the relationship between CTE participation and college-going behavior. Dougherty, Gottfried, & Sublett (2018) report there is a "link between CTE course taking and enrollment in college" suggesting that "to some degree these courses may help to strengthen the school-to-college

pipeline for many students" (p. 440). While this is promising, Gottfried & Plasman (2018) report in their study, "CTE course taking was associated with lower odds of enrollment in post-secondary education (PSE) or that the findings were null" (p. 356). Cheng & Hitt (2018) also report "students who take more credits of CTE coursework are less likely to earn a two-year and four-year degree" (p. 20). This contrasting research offers some uncertainty about the postsecondary educational benefits associated with CTE participation, but some of the negative college-going behavior can be associated with the increased ability of CTE completers being able to graduate high school and enter directly into the workforce (Gottfried & Plasman, 2018).

CTE participation offers benefits beyond simply the improvement in graduation rate, decrease in dropout rate, increased employment probability, and increased wages. Taking a forward thinking viewpoint, in 2011 it was projected that 14 million job openings would be filled by workers with an associate's degree or occupational certificate (Symonds, Schwartz, & Ferguson, 2011, p. 2). Further, Symonds, Schwartz, & Ferguson (2011) report that "27 percent of people with post-secondary licenses or certificates–credentials short of an associate's degree–earn more than the average bachelor's degree recipient" (p. 3). Considering this earning power and forward thinking mindset for the potential benefits for CTE participants, a quality CTE program offering is certainly something to be considered by districts to offer the greatest outcomes and benefits for all students.

Importance of Quality CTE Programs

While CTE participation is linked to increased benefits as outlined above, the type and quality of CTE programs and offerings are an integral part in creating the positive outcomes associated with CTE participation. Students also need the benefit of direct guidance as they consider their future career planning goals, but this can prove to be elusive in many cases as a result of student to counselor ratios, growing social-emotional needs, and the growing workload and responsibilities associated with school guidance counselors (Symonds, Schwartz, & Ferguson, 2011). As previously stated, there has been a concerted effort to fund CTE in the United States as part of the reauthorizations of the Carl D. Perkins Act (Dougherty, 2016; Giani, 2019; Gottfried & Plasman, 2018; Hodge, Dougherty, & Burris, 2020). One can appreciate the necessity of adequate funding for any program of scale to be implemented with fidelity and to

garner successful outcomes. The funding sources have provided school districts the opportunity to have some flexibility regarding the structure and design of their CTE programs. These CTE offerings generally consist of traditional comprehensive high schools offering CTE courses, work-based learning or internship opportunities offered outside of school, career academies, and specialized career and technical schools (Dougherty, 2016). Doughtery (2016) further reports that as of 2008, most students in the U.S. have had access to some form of CTE, with 94 percent of traditional comprehensive high schools offering CTE courses, 71 percent offering work-based learning or internships outside of school, 27 percent offering career academies, and 4 percent serving as specialized career and technical schools (p.9).

The opportunity to participate in some form of CTE is apparent for the majority of K-12 public school students in the U.S., but participation across programs of study is not as robust. Dougherty (2016) found in a study conducted in Arkansas that "18 percent of all course taking was accounted for by just three classes: agricultural science and technology, computerized business applications, and family and consumer sciences" (p.21). CTE offerings are important, but districts must review data to evaluate program participation, completion statistics, and overall program evaluation regarding the quality and effectiveness of individual programs of study and the overall program to ensure that all students are receiving the best possible offerings to gain the benefits associated with participation in CTE.

Additionally, Symonds, Schwartz, & Ferguson (2011) outline the importance of guidance and career counselors being able to adequately meet with and advise students regarding their future plans, social-emotional needs, course planning and scheduling, and progress monitoring. While this is of vital importance, it is often an underserved area of student support, especially in regards to CTE. Symonds, Schwartz, & Ferguson (2011) report that "America's current system of career guidance and counseling is wholly inadequate, and many adolescents receive virtually no useful guidance" due to student to counselor ratios of 500:1 in our middle and high schools (p.26). They elaborate further that "many counselors are more interested in students' pressing personal, psychological and social problems, and do not have the expertise to provide high quality career guidance" (p. 26).

In summary, CTE has a long history as part of the American public education system. While much progress has been made through increased funding, more positive perception, and

greater recognition as a needed and relevant curriculum, CTE still struggles to overcome the stigma of being a "less than" curriculum and one that is not targeted for college bound students. This stigma is beginning to improve and research indicates positive benefits associated with CTE participation, including increased graduation rate, decreased dropout rate, and increased acquisition of "soft skills" and employability. These benefits are positive, but the type and quality of the CTE program is an integral part of ensuring success for students. Ensuring students have access to guidance and career counseling is another component of positive CTE programs outlined in the research.

The purpose of this study was to evaluate the CISD CTE program and answer research questions to help gain an understanding of why approximately 70 percent of students enroll in a CTE pathway but only around 35 percent complete a CTE pathway. While this is a relevant question to answer, it is important to note that these statistics are in alignment with research findings regarding CTE participation versus completion rates. Dougherty (2016) found in his study that 89 percent of students took at least one CTE class with approximately 30 percent choosing to "concentrate", meaning they took three or more credits in a formal, coordinated study (p.5).

The extant research has played an integral part in our research design, research questions, and has been the lens through which the data has been viewed to offer an honest evaluation of the current status of the CTE program within the CISD, and recommendations for improvement of the program moving forward. Further, the research offers valuable insight into the next steps for future inquiries regarding the district's CTE program to pick up where this program evaluation concluded to dive deeper into viable further research to improve the overall program and benefit all students.

DATA AND METHODS

Answering our research questions required a mixed-method approach of analyzing the school district to understand the degree of CTE enrollment and completion, gathering survey data to understand student and staff perceptions, and deepening our understanding through interviews and observations. We aimed to answer question 1 by conducting a quantitative descriptive analysis summarizing the district's data about student participation in the CTE program over the past five years (2017-2021). Questions 2 - 4 were addressed via quantitative data gathered from student and teacher surveys. The aim of our surveys was to understand the factors that influence a student's decision to enroll and persist, or not, in a CTE pathway and to investigate the benefits that students gain from participating in the CTE program. Finally, using a qualitative approach –based on interviews of students, teachers, and staff– we were able to better grasp students' experience of the CTE program in a more complete manner.

Quantitative Data Collection and Analysis

Our team did not receive the anticipated student CTE enrollment data that was intended to provide the descriptive analysis of student CTE participation over time. Therefore, our quantitative data analysis was focused solely on survey data. The student survey instrument (see Appendix A) asked CTE students to self-report about their past and present participation in the CTE program, their reasons for choosing and remaining in a specific pathway, and the perceived benefits associated with participation in the CTE program. Similarly, the teacher survey instrument (see Appendix B) was designed to help us gain insights into teachers' perceptions of the CTE program. Our quantitative analysis illuminated student and staff perceptions of the CTE program through the use of multiple-answer multiple-choice questions such as:

- Which of the following influenced your decision to enroll in the CTE Pathway Program?
- What factors do you believe influence students' decisions to complete the CISD CTE Career Pathway Program?
- Which of the following benefits have you experienced as part of your participation in the CTE program?

- Which of the following do you believe the CISD could utilize to increase student participation in the CTE Career Pathway Program?
- Which of the following do you believe the CISD could utilize to increase student completion of the CTE Career Pathway Program?

Surveys were released to all participants simultaneously and participation in the survey was anonymous and voluntary. Electronic links to student surveys were provided to the CISD leadership staff. During our site visit to CISD, all students were asked to complete the survey during an advisory period via electronic communication from CISD personnel, with reminders sent twice in the 2-week period following our visit. The teacher surveys were also provided to CISD leadership staff and distributed to staff members via electronic communication from district-level administrators, with reminders sent twice in the 2-week period following our visit. The participant recruitment letter can be found in Appendix C.

We received a total of 949 survey responses from high school students in CISD and 87 responses from faculty and staff across both high schools. The sample surveyed represents an accurate depiction of CISD. The tables below provide details about the response rate of students and staff in CISD and how it compares to overall CISD demographics. We saw the lowest response rate from ninth grade students, which is not surprising given that they are in the first possible year of a CTE pathway.

Table 1

Student Response Rate by Grade Level

Grade Level	Total Enrolled	Total Responses	Response Rate
9th	1,197	156	13.03%
10th	995	353	35.48%
11th	878	178	20.27%
12th	760	219	28.82%
TOTAL	3830	949	24.78%

Table 2

Student Response Rate by Race

Race	CISD District Enrollment (2021-22)	Student Survey Respondents
Hispanic/Latino[2]	71.00%	74.53%
White	22.39%	35.14%
Black	3.27%	3.82%
Two or more races	2.7%	21.5%
Asian	0.40%	0.69%
American Indian/Alaskan	0.13%	4.28%
Hawaiian/ Pacific Islander	0.10%	0.92%
Prefer not to say	---	33.64%

Table 3

Staff Response Rate

School	Total Employed	Total Responses	Response Rate
CHS	135	44	32.59%
CCHS	59	43	72.88%
TOTAL	194	87	44.85%

Figure 1

Staff Responses by Role

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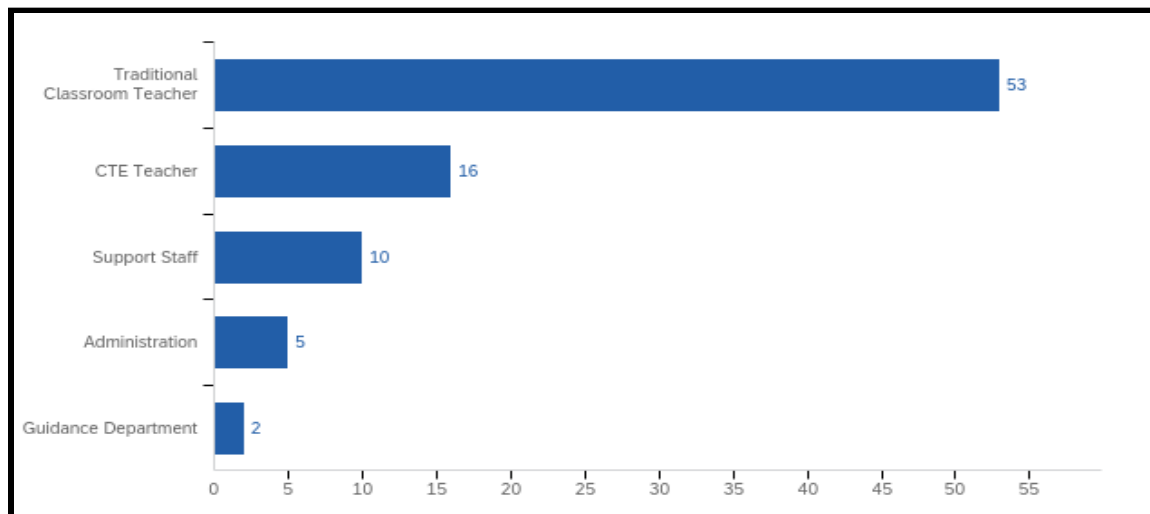
[2] The CISD includes Hispanic/Latino as a race. Our survey asked about Hispanic, Latino or Spanish origin separately from race.

Upon completion of the surveys in Qualtrics, we exported and cleaned the data to eliminate incomplete responses, correct typos and resolve redundancies before performing statistical analyses that would help answer our research questions. Using descriptive statistics to compare occurrences of student survey responses allowed us to better understand how students make choices to join and remain in the CTE program. To answer questions related to the factors that influence a student's decision to participate in the CTE program generally, and how they made a choice to enroll in a specific CTE pathway, we ran looked responses to our closed-ended questions to which factors most influenced their choices to enroll, depart or complete a CTE pathway and their perceptions around the benefits associated with participating in the CTE program.

Qualitative Data Collection and Analysis

Qualitative data was gathered from interviews with various constituencies central to the CTE program: district administrators, school administrators, teachers, counselors, and students. The conceptual framework guiding our qualitative inquiry is the "grounded theory design" (Creswell, 2012). Creswell describes grounded theory design as a method for "letting a theory emerge from the data" (p. 429). As such, this method allows researchers to focus "on the meanings ascribed by participants in the study. [The method] is more interested in the views, values, beliefs, feelings, assumptions, and ideologies of individuals than in gathering facts and describing acts" (Creswell, p. 429). We selected this framework because it allowed students and educators to explain their experiences of the CTE program as a way to generate the data needed to answer the research questions. Moreover, grounded theory design allows researchers to attend to individualized outcomes, which supports our goals around understanding students' perceptions about the benefits of participating in CTE. Finally, grounded theory design is ideal for evaluations like ours that center on formative evaluation--that is, we are seeking input from participants about how the CTE program might iterate to better serve real-world needs (Patton, 1987, pp. 40-42).

The primary method for obtaining qualitative data was semi-structured interviews. This method was chosen for its ability to provide "depth and detail" about the CTE program (Patton, 1987, p. 46). While remaining faithful to the interview protocol, the semi-structured interview

method allowed us to ask for examples, follow-up, and probing questions. All interviews and student focus groups were conducted in person during our site visit. We conducted a total of seven small focus group interviews, with five to six students each for 30-45 minutes, at each of the two CISD high schools. We interviewed 37 students across the categories of on-track to complete, students who explored various pathways, and those who had departed the CTE program all together. The CISD CTE leadership staff identified the group of students. The student focus group protocol can be found in Appendix D. The focus groups began with an index card activity (Millis, 2004) designed to build trust and comfort with an open-ended question (Breen, 2006; Millis, 2004). The chief aim of our time together was to better understand (i) the factors that influence students' decisions around their level of participation in the CTE program and (ii) students' understanding of the benefits received from the CTE program.

We conducted 33 staff interviews from administrators, teachers, and counselors in both CISD high schools. The staff interview protocols and questions can be found in Appendix E. The first group that we interviewed were district and school-level leaders. Participants in this group consisted of district staff responsible for CTE and the building administrators of the two CTE high schools. Each of these people (eight in total) were interviewed individually. The purpose of these interviews was to obtain information about the program goals and implementation structure of CTE in the district. This information relates to research questions 2 - 3 because it provided data about how school and district level leaders measure student success in the CTE program.

The second interview group was counselors. Our early investigation suggested that counselors function as CTE gatekeepers because they work with students and place them in a CTE pathway. We met with three counselors at each school (six in total) to learn more about the process that they use to place in-coming 9th grade students in a CTE pathway and to hear their perceptions about the factors that contribute to a student's level of engagement with CTE during the high school years. We also asked counselors about their perception as to the extent to which students in the CTE program are achieving the socio-emotional goals that are referenced in the CTE mission statement published on the CISD website.

The third series of interviews included CTE teachers. We anticipated conducting individual interviews with three teachers at each site, but were fortunate to gain access to conduct nineteen individual interviews with CTE teachers at the two CISD campuses. These

teachers represented a cross-section of the CTE experience: teachers situated within a pathway containing the highest number of completers, those who teach in a pathway with a low number of completers, and those who teach in a low-enrollment pathway. These interviews focused on teachers' perceptions around the factors that influence a student's persistence in a CTE pathway. We also asked teachers for their perceptions about the degree to which students are benefiting from the socio-emotional goals of the CTE program.

After completing our interviews, we used Otter, an electronic transcribing resource, to ensure that we had complete transcripts of each conversation. Interview summary sheets (Patton, 1987) were also used to reflect on our interviews and draw connections soon after completion. The process of completing summary sheets and discussing them helped us to identify themes from the interviews that were essential for coding. We used Charmaz's (2014) grounded theory method to code our interviews. All interviews were coded and analyzed to identify trends among administrators, counselors, and teachers. See Appendix F for a chart of all participants interviewed.

LIMITATIONS

Despite robust engagement from the CISD students, administrators, counselors and teachers with both our quantitative and qualitative data collection, there are a few limitations to our program evaluation. Due to access and feasibility we were unable to capture all of the relevant perspectives in our research. First, we did not conduct in person interviews with students who were never enrolled in any CTE courses. This meant that we had to rely on the survey data for their perspective. We may have garnered a deeper understanding if we could have interviewed those students. Additionally, we were not able to gather the perspectives of recent high school graduates, particularly those who completed CTE pathways. Research Question 4 focused on the benefits of the program and we believe that CISD graduates of the CTE program would have the best view of how beneficial the program was to their post-graduate endeavors. Finally, given the growth trajectory of the Capstone community, seeking the perspectives of business and civic leaders would offer key insight into how the broader community currently views CTE and the pathways available at CISD. These additional data points would have provided a more complete understanding of the CISD CTE program, thereby preventing potential concerns with content validity. However, we found strong alignment between the qualitative data and quantitative data leading us to conclude that there is a degree of face validity in our findings.

The lack of student CTE enrollment data from the district directly led to our inability to answer Research Question 1. Without the district's ability to identify students accurately across each CTE category, we were not able to gather the full picture of CTE enrollment and persistence. If we had more capacity we would have explored comments related to parity of programs across schools. It was not, however, a part of the scope of our data collection, though it has implications for enrollment and completion of CTE pathways. This raises questions about the reliability and generalizability of our findings. We were not able to compare the actual course enrollment data and relevant trends with the data collected.

FINDINGS

Research Question 2: What factors influence a student's decision to enroll in a CTE course and/or CTE pathway?

Finding 2A: Students reported that the following factors were most influential in their decision to enroll in CTE: the pathway aligned with their post-secondary interests; the school counselor suggested a pathway; the pathway was presented at a middle school recruitment event; and friends and family encouraged the student to pursue the pathway.

STUDENT PERCEPTIONS

Factors that Influence a Student's Decision to Enroll in CTE:

- *Pathway aligned to student's post-secondary interests*
- *Counselor influence*
- *Middle school recruitment*
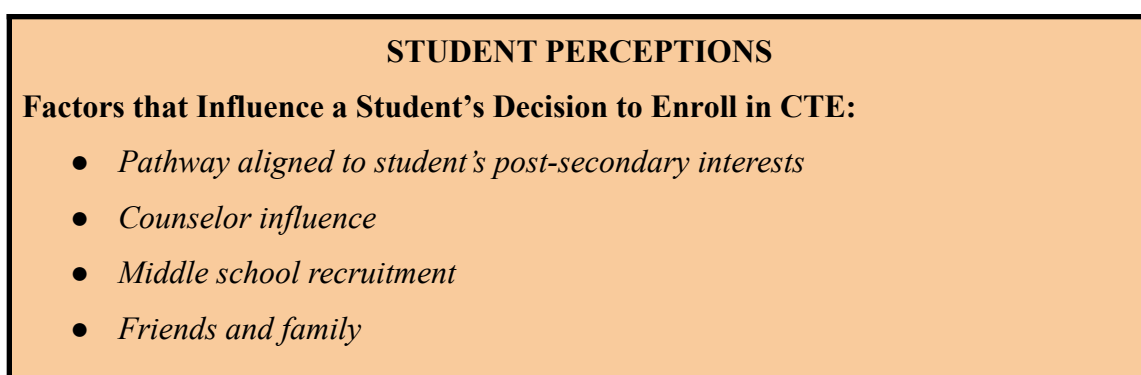- *Friends and family*

Figure 2

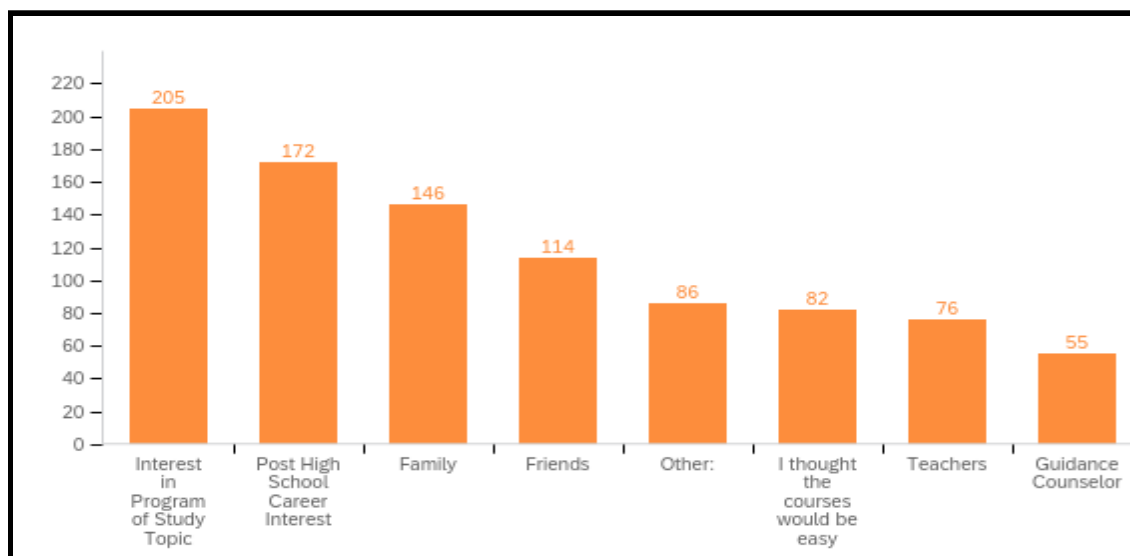Factors Influencing Decision to Enroll (Student Reported)

Figure 3

Factors Influencing Decision Not to Enroll (Student Reported)
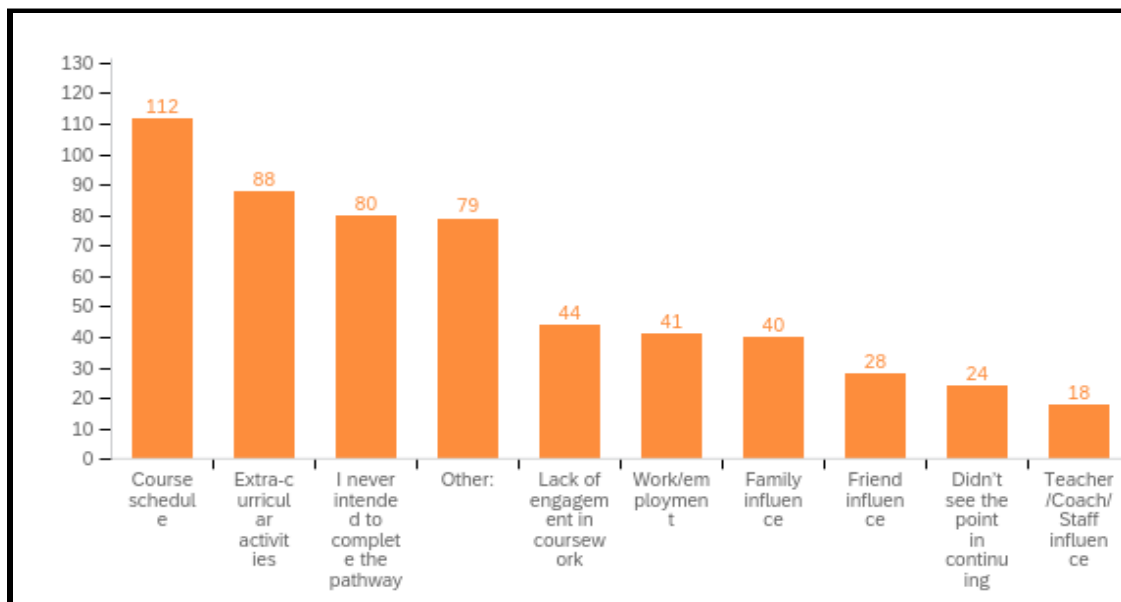
Pathway Aligned to Student's Post-Secondary Interests

  All elements of the study suggested that students chose a particular pathway because it aligned with their post-secondary career or academic interests. During the focus groups, this theme emerged as students spoke about CTE classes preparing them for a future career. "[CTE] is preparing you for [a job] you're gonna be in for maybe part of your life, maybe most of your life," said Student C, "you're going to be more prepared for [that job] than you would have been if you had not taken that course." Similarly, Student S, who was close to completing their CTE pathway, also explained that they joined CTE because the courses connected to their career interests: "For me, I've always wanted to become a doctor and when I heard about the program, I was excited about it. So I just joined." From our survey data, interest in program of study and post-high school career interests were the most highly chosen factors for why students enrolled in a CTE pathway. Additionally, in response to why they chose not to enroll in a CTE pathway, several students commented that they did not know what they wanted to do after school, which indicated that they were thinking about post-high school options when choosing whether to enroll or not.

School Counselor Influence

Student focus groups revealed that school counselors wield significant influence when it comes to how students are placed in a CTE pathway. Counselors serve as the school's front line when it comes to course selection and placement. Student K explained that counselors meet with students to discuss planning their upcoming fall schedule during the spring semester: "They ask you about your schedule and talk about CTE classes." "[The counselors] try and get your first choice if they can," reported Student M. When a student is not able to take their first choice class – either because the class is full or because it is impossible due to scheduling constraints — the counselor helps students identity a 'second best' class that meets their interests. Additionally, form our survey data, we learned that guidance counselors both directly and indirectly influenced enrollment. A number of students indicated through open-ended responses that they were placed into classes by a "mistake in their schedule", because they "needed an elective" or they were "put in that class."

Some students perceive that counselors place students in classes based on course enrollment numbers and scheduling ease rather than by responding to students' interests. Additionally, students reported being placed in classes arbitrarily: "[Counselors] basically just throw you in….They just threw me in mine," said Student I. Relatedly, Student R suggested that the reason for low levels of student engagement in CTE courses was a result of students being placed in classes that they did not choose: "[The counselors] are trying to find classes to fill for those students. And so sometimes there's kids who are in there that don't really want to be in there." The focus groups with counselors (noted below) shed light on the various pressures that staff experience as they juggle the demands of meeting student interests, keeping class sizes manageable, and helping students to craft a manageable course schedule.

Middle School Recruitment

Those students who did land in courses that interest them described learning about CTE offerings in middle school. The district has traditionally offered a variety of CTE preview presentations in the middle schools to encourage student interest in CTE. Students reported that these events encouraged them to work with their counselors to be enrolled in a CTE pathway. Student HH, who is enrolled in the engineering pathway, described the process this way: "[High School CTE teachers] went back to our middle school and they did examples and stuff. And

engineering just seemed pretty cool. They showed you stuff they made." Similarly, Student L also recalled learning about CTE following a middle school preview day: "I would say [the preview day] was very informational. It was in seventh grade, of course, it wasn't too advanced. But it gave you a good basic concept of what a CTE course would be like."

Access to learning about the CTE programs during middle school was especially helpful for students who had a predetermined post-secondary career. For instance, Student EE, a female senior in the healthcare pathway recalled seeing CTE female students wearing medical uniforms: "I think ever since I was young I wanted to be in health care. And then in middle school when I saw high school students – and girls! – wearing their scrubs and showing everything that they learned in the classes. They got me really interested." Similarly, Student R, a senior who has been accepted to a four-year undergraduate engineering program, also explained that the middle school presentations helped him choose a CTE pathway: "For me, it was in middle school...the engineering teacher came to the middle school and gave a lesson all about engineering. That's when I decided that I wanted to take engineering in high school and later on, hopefully, continue on in engineering in college as well."

Friends and Family

Friends and family wield significant sway as students choose a CTE pathway. Student Q explained that "[my] girlfriend at the time" was the driving influence in choosing a CTE pathway. "Both her parents were cops," the student explained, "so she wanted to be a cop...so we went into the class together." This student later dropped the CTE pathway because the CTE class conflicted with an AP level English course. Relatedly, Student HH recalls joining a pathway because "my friends also [joined] so I definitely wanted to join." Likewise, some students suggested that family and guardians encouraged them to enroll in a pathway: "Oh, my granny was in the healthcare industry and some of my friends were doing it. And it just seemed right to go into that pathway," said Student GG, a senior who is on track to complete the healthcare pathway.

> "I think ever since I was young I wanted to be in health care. And then in middle school when I saw high school students – and girls! – wearing their scrubs and showing everything that they learned in the classes. They got me really interested."
> - *Student EE*

Other Considerations

> "Yes, depending on the CTE course, the classroom can be set up differently. Like in welding or automotive, they're set up in the garage ... on the other hand, a traditional classroom will have seats rows."
> - Student L

Students described choosing CTE pathways because the classroom experience seemed more engaging then a typical course. As such, some students noted the influence of popular teachers who encouraged them to join a pathway. Student FF, for example, reported that he chose a pathway because of the quality of the teacher: "...the guy that teaches [engineering], he like kills it." Others found a pathway attractive because of the potential for a hands-on classroom experience: "Yes, depending on the CTE course, the classroom can be set up differently. Like in welding or automotive, they're set up over the garage. And they can be the tables. There's like an actual table with seats around it as traditional as like on the other hand, a traditional classroom will have seats, rows," said Student L. These themes foreshadow a critique that will be explored below – namely, when these expectations go unmet some students choose to opt out of completing the pathway.

Finding 2B: The faculty perceive that the following factors influence a student's decision to enroll in a CTE pathway: friends and family, alignment to student's career goals, and placement into CTE courses.

FACULTY & STAFF PERCEPTIONS

Factors that Influence a Student's Decision to Enroll in CTE:

- *Friends and family*
- *Alignment to student's career goals*
- *Placement into CTE Courses and the role of the counselor*

Figure 4

Factors Influencing Decision to Enroll (Staff Perception)
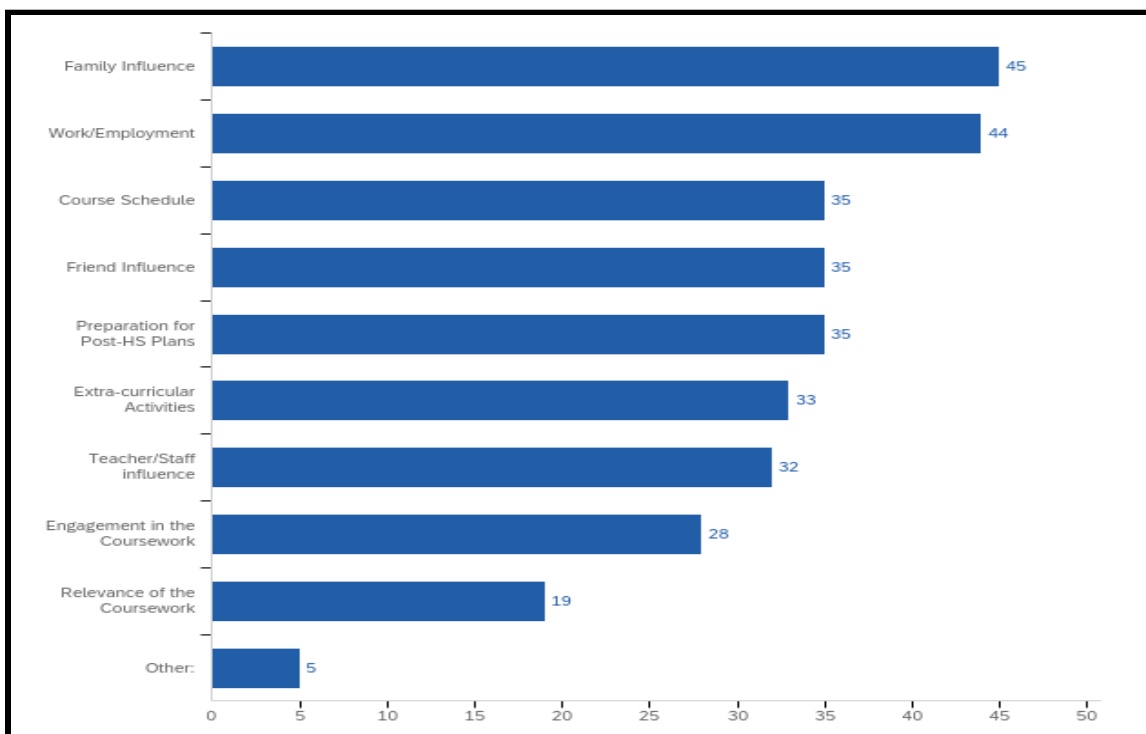
<u>Influence of Family and Friends</u>

The teachers and administrators reported that family and friends wield significant influence on a student's choice to enroll in a CTE program. In particular, the faculty and staff reported that involved parents play a significant role when they guide their children to connect their interests to an appropriate CTE pathway. Over half of staff members chose family influence as a factor of enrollment and forty percent chose friends as an influence. Moreover, teachers and staff observed that parents can reinforce messages from school about the role of CTE in helping students attain post-secondary job skills. "We have a lot of parents that don't think college is what they want for their kids," Teacher H observed. "I didn't go to college [a parent might think], why should you go to college? So CTE fills that gap. They can go straight from the classroom into a job."

"It's all about the family."
- Teacher L

CTE is particularly attractive to families from low socio-economic situations. For those families who might find college unaffordable or for families who rely on income from their

children, CTE programs provide a vital opportunity. "We have a large portion of students that are very low income, and so they have a lot of influences at home about earning money and starting work early. So there's a lot of influence from the family on their chosen education and career path." For such families, Teacher H observed, CTE becomes an important opportunity for their domestic economy: "Parents are all about CTE. I think they see it as a huge opportunity."

Pathway Aligned with Students' Post-Secondary Interests

The faculty and staff also perceive that students choose a CTE pathway because it aligns with their post-secondary career interests. The healthcare pathways were the most often cited example for a program that helps students attain their career goals. For example, Teacher D explained that students chose this pathway because certain jobs are in high demand and also garner high pay. The teacher noted that students "have an upper hand on other students because they have the certification … [a student is] one step closer to having their nursing degree." This teacher contrasted students who complete the CTE pathway with those who are "lost" and do not complete. Those who complete do so because belonging to the pathway "makes them feel as if they're taking on more of an adult role. [CTE] kids have already established [career goals] and it makes them feel like a stepping stone has been placed and they've gotten one step closer to accomplishing their goals."

The Impact of Enrollment, Funding, and Accountability

There is also a perception that some decisions for students to enroll in CTE pathways are driven by the influence of funding and accountability. Roughly a quarter of the teachers and staff wondered if counselors and administrators might be placing students in a CTE pathway for reasons tied to state expectations and accountability.

> "The obvious money that we get from kiddos that are in a CTE pathway."
> - Administrator 4

This was highlighted by Teacher L who posited there was pressure on counselors to place students in CTE because CTE participation and post-secondary placement was linked to accreditation standards in Texas: "...because we're graded and rated somehow with TEA in the state of Texas…which is not always in the best interest of the student. It just makes the campus look good that we have X percentage of students that are college-bound with no real follow up." Administrator 4 echoed the impact funding has on CTE enrollment when asked about the

benefits to CTE enrollment by responding, "the obvious money that we get from kiddos that are in a CTE pathway."

Teachers and staff observed that the district's financial incentives were based on the number of students enrolling in CTE, not on the number of students who complete a pathway. School leaders in the focus groups suggested the accountability system was an inaccurate and inadequate metric for determining the success of the CTE program. As a result, a greater emphasis is placed on enrolling students in a pathway rather than supporting students to complete a pathway. This theme was best expressed by Teacher L: "Did they go? Did they drop out? There's very little vocational training in the sense of really helping students with the CTE track related to vocational training." Such sentiments were echoed by Teacher R's direct assessment: "School accountability is a big piece of the puzzle."

Finding 2C: When it comes to choosing a pathway, the teachers overestimate the influence that families wield in the choice of a student's pathway and teachers underestimate the value that students place on the CTE program's ability to position them for post-secondary readiness.

Roughly 30 percent of the teachers and staff interviewed reported that family and friends were the most influential factor when it came to students choosing a CTE pathway. In fact, 'family and friends' was the primary factor cited by educators. However, when students were asked to describe the factors that influenced their decisions their most commonly reported answer was that a pathway aligned to their post-secondary goals (28 percent). Indeed, we found this to be an interesting and important finding: students report a greater sense of agency, choice, and futures thinking around their pathway selection than what is perceived by teachers and administrators.

Research Question 3: What factors influence departure from or completion of a CTE pathway?

Finding 3A: When students completed the pathway they shared the following traits: the value of CTE courses was clearly articulated; CTE courses were connected to students' job desires; students felt agency in choosing the pathway; students formed meaningful relationships with CTE teachers.

STUDENT PERCEPTIONS

STUDENT TRAITS: COMPLETERS

- *Students felt that the value of CTE courses was clearly articulated*
- *CTE courses were connected to students' career desires*
- *Students felt agency in choosing the pathway*
- *Students formed meaningful relationships with CTE teachers*

Table 4

Factors Motivating Student to Complete CTE Pathway (Student Reported)

Field	9th	10th	11th	12th	Total
This program is preparing me for my post-high school plans.	15.91%	40.15%	17.42%	26.52%	132
Work/employment	11.21%	43.93%	20.56%	24.30%	107
Family influence	14.10%	43.59%	21.79%	20.51%	78
Extra-curricular activities	16.67%	34.85%	25.76%	22.73%	66
Course schedule	14.29%	33.33%	23.81%	28.57%	63
Engagement in coursework	8.77%	36.84%	28.07%	26.32%	57
I see the relevance of the coursework.	7.32%	43.90%	21.95%	26.83%	41
Friend influence	17.50%	32.50%	27.50%	22.50%	40
Teacher/Coach/Staff influence	8.57%	31.43%	31.43%	28.57%	35
Other:	9.09%	63.64%	18.18%	9.09%	22

<u>Value of CTE Courses is Clearly Articulated</u>

Students who completed their CTE pathway understood the value of obtaining post-secondary credentialing and relevant classroom experiences that increase their marketability for future employers. Explaining the connection between CTE courses and post-secondary career

readiness, Student S, a health sciences pathway completer, said: "It's really benefited me because I want to become a doctor. So I get to learn those things that once I graduate, if I pass the test, I'm going to be certified. I'm going to be able to work in what I want to do right after high school." Moreover, students who complete the CTE pathway contrasted their CTE courses with their other courses by describing the connections between the CTE classroom and real-world experiences. For example, when asked to contrast the learning environment in CTE courses compared to other classes, Student FF responded: "Yeah. They are 100% different. What's different? They teach you skills." This was echoed by Student LL, "It keeps me more interested and wanting to learn." And Student EE noted, "It is because I can benefit."

Conversely, students perceive that their peers who do not complete a pathway fail to grasp the benefits of finishing. When researchers asked CTE students what the school could do to encourage student completion, the completers suggested that school leaders should underscore the value of remaining in a CTE program for all students. "Basically, if you took that course," Student R said, "[students should know] how it could help you in an engineering class in college. I would have liked to have known how this class that I'm taking is going to impact me later on."

CTE Courses Taught Skills Toward Students' Career Desires

In addition to marketability, students who completed their CTE pathway felt that they were learning real-world skills. Specifically, students who completed were able to make direct connections between classroom activities and the sorts of work they would be doing in a career. Student R, who will complete their pathway in aerospace engineering, recognized ways that what was being taught in the classroom would help him in the future: "Last year, I took digital electronics, and basically a lot of the stuff that we talked about [applied to] what I wanted to do…and I am very happy with what I've been taught." In answer to the question, "When will we use this in the real world?" Students who were on track to complete their CTE pathway answered with a resounding, "All the time!"

Students Felt Agency in Choosing the Pathway

Students who complete their CTE courses reported a sense of agency in choosing their pathway. This theme emerged as a related but separate theme to the discussion about marketability and skill acquisition for future jobs. The agency students described was connected to their ability to choose courses that aligned to their interests and future aspirations. When asked

to contrast the experience of choosing a pathway versus being put in a pathway by a counselor, Student S observed: "If you're put in the class, maybe you'll decide to like it and stay there. But I think if you choose to be in that class, it's because you really want to pursue a career." The student expounded, "There are people that have been in there since freshman year and are still in that class in senior year. They really like it, and they've learned a lot." Conversely, Student Q who was placed in a pathway by a counselor and did not experience a sense of agency in choosing a pathway described their experience this way: "I never thought I would go into law enforcement. Maybe I'd join the military. But I never really wanted to be a cop or a firefighter or something. But I was placed in those classes so I left." In the open-ended survey questions, students also commented that they took courses based on their interests and to feel proud of themselves for completing a particular pathway.

<u>Students Formed Meaningful Relationships with CTE Teachers</u>

Students who completed their CTE pathway reported that CTE classes foster unique peer-to-peer and teacher-student relationships. They credited these relationships for helping them to complete the program. When researchers asked students to list factors that led to completion, Student S credited the special relationships with CTE faculty: "It was the teachers and how supportive they were. During my four years of high school [the teachers] are the biggest reason why I'm still in that program. And why is it still fun." Student EE responded in a like manner: "I know that I grew to have a different and more close relationship with my teachers from CTE than my other teachers throughout the year. Because I had them throughout my high school. And I just got closer to them. It's a whole different bond than with my other teachers."

Finding 3B: Faculty perceive that the most influential factors that contribute to students completing a CTE pathway are: students recognize the value of completing the CTE pathway and that students in the CTE pathway experience a strong sense of belonging.

FACULTY & STAFF PERCEPTIONS
STUDENT TRAITS: COMPLETERS
● *Students have a strong sense of personal career goals while in high school*   ● *Students experience a strong sense of belonging*

Students Have a Strong Sense of Career Goals in High School

The CTE faculty and staff observed that the students who complete tend to have a strong sense of their personal career goals during the high school years. As such, school personnel characterize those who complete as students who (i) are invested in a future career and (ii) understand that completing this pathway will help them to achieve this career goal. The goal of CTE, Teacher A explained, "is to show [students] the pathway" to achieve their career aspirations. Teacher A described the CTE experience of one student who had a clear career dream in high school which drove them to complete the program:

> [My student] wanted to do this because she is interested in [law enforcement]. And she knew early on that that was where she wanted to be. They offered multiple pathways at the school that could get her there. One of them is CTE for law enforcement…she just had to coordinate with her counselors and her parents to sign up for the proper classes, and they just have to follow along with that pathway in order to graduate with that accreditation. If you're enrolling in CTE, it tells me that you are probably fairly certain and fairly invested in what you want to do. And you are on the path to get there already. I think a lot of the students who are in my class come into this class already loving [the content in the pathway] or they wouldn't be there, right? They've already kind of made that choice.

Students Experience a Sense of Belonging

CTE teachers consistently spoke about the sense of belonging that can be fostered between the students in a pathway and between teachers in a pathway. CTE faculty members used the words "niche" or "hook" to describe the impact that participating in a CTE pathway can have for a student's overall high school experience. Teacher R admitted: "I didn't realize how much of a hook [CTE] is, especially when I compare it to athletics and band and fine arts. …We have students here, the reason they go to school is to go to that construction class, to go to the AV class. That's the hook that keeps them here." The teacher went on to describe how "[students are] looking for that niche of where to belong, to build a purpose. And you're making a

difference. It's something that is respected." Teachers reported that CTE can function in a similar manner to athletics or fine arts insofar as belonging to a CTE pathway can provide students a sense of affinity-based connection to their peers, teachers, and the school community. In many CTE pathways an *esprit de corps* develops among peers and between students and their teachers. "They're together two hours a day in the same classes and then a lot of them are in the same classes outside of my class because they're on the same path," said Teacher D. In the faculty focus groups a clear theme emerged around the connection teachers felt with their CTE students. Teachers perceived that those students who felt a strong sense of belonging tended to complete their pathways, especially when compared to those students who did not experience such a sense of connectedness.

Finding 3C: When students did not complete the pathway they shared the following traits: students felt that they did not have a clear sense of the pathway they were in; CTE classes were not engaging (dissatisfaction with computer-based delivery); pathways they were interested in did not exist

STUDENT PERCEPTIONS

STUDENT TRAITS: EXPLORERS
- *Students felt that they did not have a clear sense of the pathway they were in*
- *CTE classes were not engaging (dissatisfaction with computer-based delivery)*
- *Pathways that interest students do not exist*

Table 5

Factors That Led to Changing CTE Pathway (Student Reported)

Field	9th	10th	11th	12th	Total
Course schedule	9.09%	38.18%	20.00%	32.73%	55
Extra-curricular activities	20.69%	41.38%	20.69%	17.24%	29
Family influence	12.90%	35.48%	25.81%	25.81%	31
Friend influence	11.11%	48.15%	29.63%	11.11%	27
Teacher/Coach/Staff influence	18.75%	25.00%	25.00%	31.25%	16
Work/employment	9.09%	27.27%	18.18%	45.45%	22
Lack of engagement in coursework	21.05%	31.58%	26.32%	21.05%	19
I never intended to complete the program of study	35.71%	25.00%	25.00%	14.29%	28
After participating in a class I just didn't see the point in continuing	6.06%	45.45%	33.33%	15.15%	33
Other:	23.44%	32.81%	25.00%	18.75%	64

Students Did Not Understand What Pathway They Were In

The most common theme that emerged from focus groups with students who did not complete their CTE pathway centered on the students' lack of understanding about the pathways in which they were enrolled. Students on the "explorer" track were often unable to tell researchers what pathway they were enrolled in. From our survey data, 63% of students reporting "other" reasons for changing their CTE pathway indicated not knowing what the pathways were. When researchers asked about why this was the case, the students from the focus groups reported confusion and lack of understanding about the CTE program in general. They expressed questions about how the CTE program functioned and what they could gain from participating in CTE. And students often lamented that they were placed within a pathway

I was like, really? I could get my pharmacy tech certification by the end of the year?"
- *Student GG*

by a counselor without meaningful consultation. To take one example, Student GG, a senior, reported having been in the program for three years before realizing that they could be eligible for a CTE certification: "I didn't know that in my senior year I could be certified as a medical assistant. I found out a month before starting my senior year."

The students who did not complete their pathway recommended that the CTE program should be more effectively explained to students. Student AA, a senior, suggested that school leaders should "actually talk to us about this stuff because obviously barely any of us know

anything about this." Students suggested that school leaders should consider advertising the courses during the time when students are choosing classes: "They should somehow advertise classes then I'll actually be able to see what I can join…. like near the end of the year they could have something like a poster on the walls that tells us what classes are offered" (Student O).

Students in the focus groups repeatedly suggested that the school's materials were ineffective in explaining the CTE programs and opportunities: "They gave me a thick packet. I got one of those like, and after I went to talk to [the counselor] I came home and I was like, I'm not reading this, this is crazy." Some students offered suggestions for how the school might communicate more effectively with students about the CTE program. Student AA recommended "making it more clear what classes were offered because I don't even know that I could take half of these classes in the first place…definitely more clear communication."

CTE Classes Were Not Engaging

A dissatisfactory CTE classroom experience was a second theme that emerged from student focus groups. The course that garnered the most negative attention was the *principles class,* which is sequenced early in a CTE pathway. Students who did not complete saw this class as a primary barrier. These students described the *principles class* as a pedagogically dry course. It was built around "PowerPoints and then filling in the notes," said Student EE who completed the pathway. "And doing that, I would rather just talk to my friends in class than paying attention to the PowerPoint and writing down notes. I would have liked way more hands-on." This level of dissatisfaction with the early CTE course was also shared by Student GG who lamented, "There's some teachers [for whom it's] like, oh, look, workbook work. Oh, now let's take a test over it. It's not really learning, it's just memorizing and spitting out on a piece of paper." Student R, a completer, suggested that this sort of classroom experience is

> "We were always on the computer, we would sometimes have projects." - Student Q
>
> "I wanted to I want to be able to have my own show or make a movie sooner." - Student O
>
> "We were going to have a field trip at some point, but I don't know why we didn't do it." - Student N

antithetical to the vision and philosophy of the CTE program. "Basically, nobody wants to sit in front of a teacher and hear the lecture all day long," said Student R. "You want that hands-on experience. You are there to either design something or build something or learn how to care for

animals…" Likewise, Student Q, who departed the program, contrasted the difference between computer-based CTE classes and those classes that centered around project-based learning methods. In some classes "[the teacher] just got us on the computer, we were doing absolutely nothing. [The teacher] gave us a project like twice every six weeks." The forensics courses, however, took a different approach: "One time we went out to the field and we scanned it and they had placed a bunch of things around that we had to find…they had a bunch of broken down cars and they were using those to replicate a crime scene. It was a whole lot more engaging." When asked how to make CTE classes better, Student Q replied, "More hands on things. Just make sure that students are actually enjoying it and that they're not getting stressed out by a truckload of work."

Pathways That Interest Students Do Not Exist

Students not on track to complete a pathway voiced concerns that the pathways that interest them are not offered. In the focus groups, students in the explorer track suggested that school leaders should gather student input about pathways that interest students. For instance, Student Y, an explorer, suggested that school leaders "try to get more options…they should take a poll or something and see what classes kids want." The student continued, "Then maybe we could have more options – like cosmetology." Relatedly, the students noted that the highly popular automotive pathway is only offered at one high school in the district. "Automotive. I feel like that is a big one [that is missing] because a lot of kids are into cars and trucks," observed Student Y.

Finding 3D: Faculty perceive that the most influential factors that contribute to students not completing a CTE pathway are: Students not understanding that they were in a pathway; CTE classes were not engaging (hands-on activities occur later in the pathway); classes were overcrowded and courses fill up.

> **FACULTY & STAFF PERCEPTIONS**
>
> **STUDENT TRAITS: EXPLORERS**
> - *Students do not understand that they are in a pathway*
> - *CTE classes are not engaging*
> - *CTE classes are overcrowded and course fill up*

<u>Students Cannot Distinguish Between a CTE Pathway and an Elective Course</u>

When it comes to answering the question about why some students fail to persist in CTE pathways, the perceptions of faculty and staff align with those of students in one crucial area: students do not complete pathways because students often do not understand that they were enrolled in a pathway in the first place. This sense is evidenced as Teacher 9 resurfaces the oft cited critique that students are placed in CTE pathways without minimal consultation:

> I would venture to guess that a third of the students that I have in my program did not choose to be here. The students don't always have a choice in doing what they want to do … that's where it makes it difficult sometimes to get their buy-in to the CTE program because they're being put somewhere that they didn't want to be.

Similarly, Teacher 8 perceived that only one-third of students understood what they were "getting into" when they enrolled in a CTE course. And one administrator admitted: "Half of the students know they're in a pathway."

At the root of the problem is that students do not understand the difference between a CTE course and an elective course. In fact in our conversations with students they often confused the vocabulary – students often used the terms 'elective class' and 'pathway class interchangeably. This suggests that students may be confused about the nature of the CTE program and the benefits associated with persisting in one pathway over time. Teacher 8 confirmed this observation: "Students often speak about 'elective courses,' when what they are really describing are courses embedded within a CTE pathway." One administrator lamented, "Students don't even know what CTE stands for. As for our campus, most teachers who are not in CTE don't understand what it is. They think it is just an elective."

> *"Students are unaware that taking an elective places them on a pathway." - Teacher D*

CTE Classes Were Not Engaging

Teachers and students agree that the *principles course* is problematic. The interview team observed CTE principles courses where content was delivered through slide presentations using a modular framework. Students worked independently at their own pace to complete the curriculum. Teacher focus groups suggested that this is a barrier for student persistence because "[students] were disappointed because the [the first CTE] course was not what they thought it would be," said Teacher 1. Teachers also admitted that hands-on activities are back-loaded in the latter courses of a pathway sequence. This means that students' excited expectations that CTE classes will be hands-on and project-based are unfulfilled from the start.

Overcrowded Classrooms and Lack of Instructional Materials

CTE teachers claimed that large class sizes, over crowded rooms, and lack of instructional materials for the number of students in the class all contributed to an inadequate student experience. "A general problem for all classes at this school is class size," said Teacher 10. "When I have a class of 38 kids compared to another class where I have 18. The differences are very obvious. And it's a lot easier to work with 18 kids and to individualize instruction and to be able to really scaffold and differentiate." Similarly, Teacher 11 stated that the most difficult part of the job was the large class size: "I'm not able to attend to every student, one on one."

> *Counselors give choices. Unfortunately, sometimes the choices are driven by numbers as well. Like our construction numbers are extremely large right now. But we may be saying hey, here's other options. And well, this class is pretty full right now.*
> - *Admin 8*

The interview team observed that classroom overcrowding and lack of instructional materials often meant that students were idle for long periods of time during classes. In one instance, a teacher was lecturing from a PowerPoint slide that was projected from a monitor mounted in the front of the room; only about one-third of the class could read the text on the slides. When Teacher 11 was asked what would improve the instructional quality in their classroom, they responded:

> Having an abundance of really good training materials that aren't dated, that aren't old, would help substantially … a lot of stuff is dated like, CPR dummies, it would be great to have one for every two students. So if you had one or two students and they could get more practice and master a skill.

Research Question 4: What benefits do students gain from participating in the CTE program?

Finding 4A: Students perceive the following benefits to participating in a CTE pathway: CTE helps students explore future career paths and find their passion; and CTE contributes to a student's positive sense of connection to school and teachers.

STUDENT PERCEPTIONS

BENEFITS TO PARTICIPATING IN CTE

- *Students explore future career paths and find their passion*
- *Students feel a positive sense of connection to school and teachers*

Figure 5

Benefits of CTE Experienced by Students
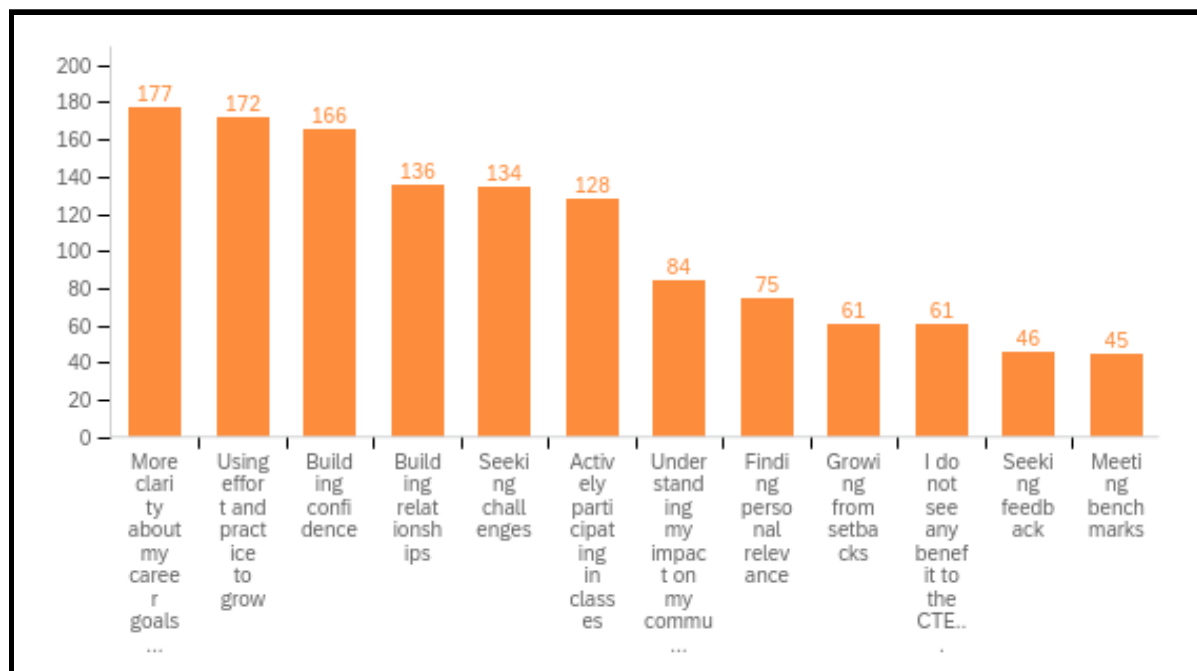
Exploring Career Paths and Passions

Students reported that among the greatest benefits of the CTE program was the opportunity to explore their passions and potential career paths that connect to those interests. Students in the focus groups spoke about the ways that CTE programs offered them the space to explore a career before committing to it as a profession. "It's like a tutorial," said Student C, "you get to see a little bit of all you can actually do before you start heading into it. So I think it benefits me a lot because it gave me a lot more understanding than I had before."

The perceptions of teachers and students converged on the value of helping students identify what they do not want to do as much as helping them learn what careers interest them. "It showed me what I didn't want to be," said Student HH. "Going into high school I was like, I want to be an engineer. Now I know I suck with numbers. [Engineering] is not going to be a feasible pathway for me. It definitely helped narrow down options of what I wanted." Student HH, who completed their pathway, had a similar experience: "I hated aerospace the entire time I was in it. So I was waiting for it to end. But at the same time, I learned from it. I learned that I can't do this or that. I don't want to do that. It was beneficial."

Positive Sense of Connection to School and Teachers

CTE students consistently spoke about the special and valued relationships they were able to form with teachers. "I think for me, it was the teachers and how supportive they were. All my four years of high school, I think they're the biggest reason why I'm still in that program. And why it's still fun," said Student S. Reflecting on their high school experience, Student R, a senior who completed their pathway, said, "I have to say the friends that you make along the way and also the teachers." It is noteworthy that students in the focus groups attributed their CTE courses for creating a positive climate in the school. Students spoke of the

> *"I think we have a great school spirit here. And it feels like it's a community of people in the classroom. From what I've seen, there will be like different cliques. But they will be able to work together. And I just think that's really cool.... Yeah, like I think tech theater is a pretty good example because I have my own clique and but like when we're working on tech theater, we work together to do what we need to"*
>
> *- Student Q*

camaraderie and shared goals within a CTE classroom. Students suggested that working with a diverse group of peers in CTE courses helped to break down traditional barriers between teachers and students and between factions of students that often exist in secondary education.

Finding 4B: Faculty perceive the following benefits for students who participate in a CTE pathway: CTE helps students explore future career paths and find their passion; CTE helps students grow in confidence; CTE participation helps students develop 'soft skills'; and CTE students and teachers develop meaningful relationships.

FACULTY & STAFF PERCEPTIONS

BENEFITS TO PARTICIPATING IN CTE
- *Students explore future career paths and find their passion*
- *Students grow in confidence*
- *Students develop 'soft skills'*
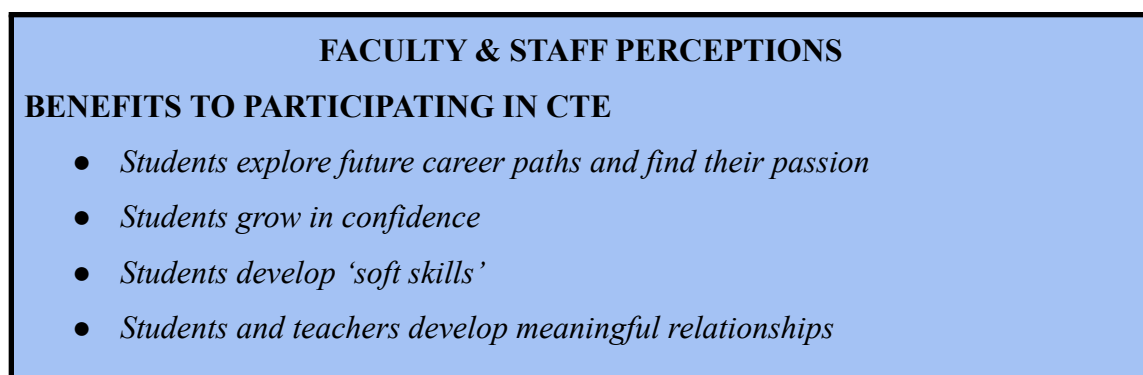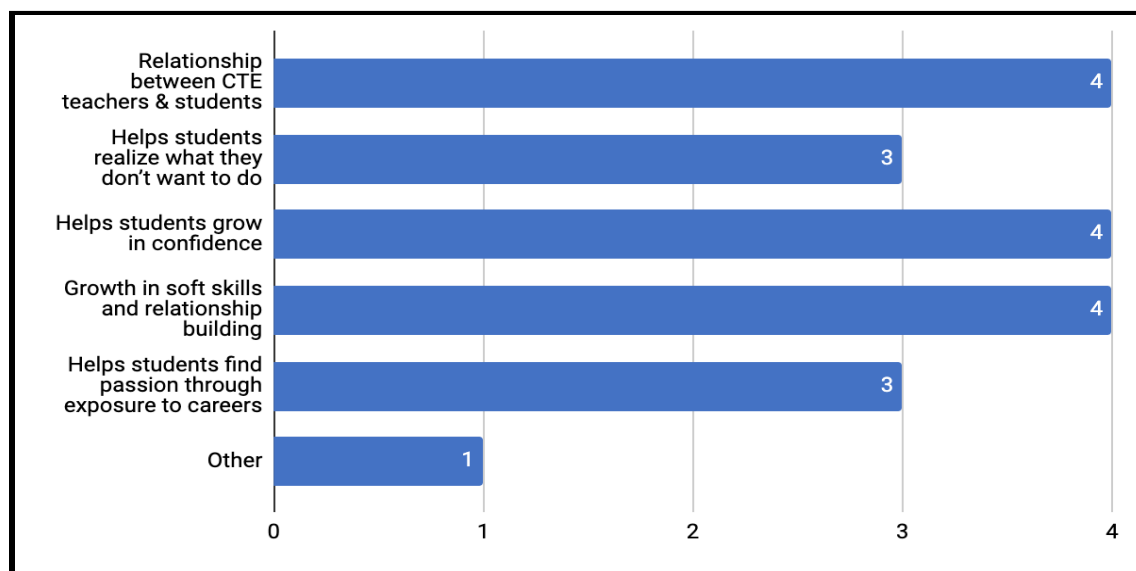- *Students and teachers develop meaningful relationships*

Figure 6

Benefits to Participating in CTE (Staff Perceptions)

Exploring Career Paths and Passions

When asked about the benefits that students gain from participating in the CTE program, faculty and staff overwhelmingly cited examples of students who were able to explore their passions and try on career paths in the program. Teachers observed ways in which students gained clarity about their future and career aspirations. Teacher 11, for instance, recalled stories where CTE students came to realization that certain career options were – and were not – viable post-secondary pathways: "I really enjoyed this or this isn't for me and then they can focus on something else to do you know, maybe not waste their time going to get a nursing degree if it's something they don't really want to do." Teachers and administrators suggested that success in the CTE program is as much about helping students to identify what they did not want to do for a career as it was about helping students to end high school with a CTE certification. Teacher 12 explained the value of CTE in such terms: "students can go through the [CTE] process without investing themselves as an adult into a career path that they're not going to be successful in because it's not the student's interest."

Students Grow in Confidence

Teachers and staff underscored the ways that CTE students grow in self-confidence during the program. Teachers in the focus groups attributed this growth to the fact that CTE students can experience academic success in a non-traditional manner. Teacher 11 explained, "They realized [that there are] programs that you can

> *"We have students who the only reason they come to school is the CTE classes."*
> -   Admin 8

graduate from. And that really inspires a lot of students who never thought they would have options." Moreover, Teacher 1 observed the connection between students' sense of belonging in the CTE program and their self-confidence: "A lot of students who are invested in CTE love it. They do great. They feel very confident in what they're doing. By the end they have themselves figured out to some degree, which I think is cool."

Students Develop Soft Skills

CTE program teachers and administrators often spoke of "soft skills" when describing the benefits students gain from participating in CTE. While the phrase "soft skills" was elusive and difficult for the educators to define, they often spoke about dispositions and skills necessary for success in a twenty-first century work environment. Chief among these skills is the ability to

work on teams and contribute to a group. Administrator 8 observed how CTE fosters these skills: "You got to learn to work with different people, different personalities. Getting along as being part of a group is a big part of it. Working as a team, especially in healthcare, you're working as a team, so you're not by yourself." Similarly, Teacher 9 observed that the skills students learn in CTE go beyond the classroom and extend into the workplace: "It is very valuable…we teach real life skills, real life stuff, not the math that I'll never use in my life, you know, but real life skills."

<u>Positive Sense of Connection to School and Teachers</u>

The most vivid responses in the interviews with teachers and administrators centered around their reflections regarding the quality of relationships students formed with peers and teachers as a result of participating in CTE. "I think those social-emotional bonds and goals are easily being met and because they're building not only relationships with their teacher, but they're building relationships in their classes," observed Teacher 11, "...I enjoy the relationships with the kids. I never would have dreamed how close you'd get with them." And again, Teacher 12 reiterated, "I think the biggest thing is the relationships. And so I think it's the relationship that the student has with their instructor or teacher depending on which pathway they're doing. If the students are able to get enough out of that relationship, they tend to stick to it."

> *"What's not publicized and what's not talked about and it's something that's hit me in the face since I've been here is sometimes that one hour a day is the only time that that kid feels like somebody in this world gives a damn about them too."*
> *- Teacher M*

DISCUSSION

The findings of this study are helpful in answering the research questions and provide valuable insight for the CISD CTE program to better understand how the program is perceived by students and faculty. The findings allow us to better understand the influencers for students and the areas that can be addressed to help foster an improvement in the overall completion rate for students who participate in the CTE program which was a stated goal for the CISD from the outset.

Finding 2A: *Students reported that the following factors were most influential in their decision to enroll in CTE: the pathway aligned with their post-secondary interests; the school counselor suggested a pathway; the pathway was presented at a middle school recruitment event; and friends and family encouraged the student to pursue the pathway.*

These findings provide insight into the most influential factors impacting their decision to enroll in CTE. It is important to hear directly from students regarding what influences their enrollment decision as this data can allow the CISD to leverage these factors to promote a sustained enrollment for students in the CTE program. The fact that student responses indicate the greatest influencer is a self-awareness of how the pathway aligns with their post-secondary interests speaks to the maturity and awareness of the students who participated in this study. They know what they want for their next steps in life and understand that their chosen pathway can help them get there in the most efficient manner possible. This finding aligns with research around the benefits of CTE participation both in the short and long term. Students who participate in CTE are more likely to graduate high school on time, less likely to drop out, have greater employability within eight years of high school completion, and also show some positive links with college going behavior (Cheng & Hitt, 2018; Dougherty, 2016; Dougherty, Gottfried, & Sublett, 2018; Gottfried & Plasman, 2018). Further, research shows the benefits of CTE participation in the development of soft skills and grit (Cheng & Hitt, 2018; Symonds, Schwartz, & Ferguson, 2011).

Also, the second most influential factor was the role of the counselor in helping students identify their pathway of choice. Symonds, Schwartz, & Ferguson (2011) describe the importance of counseling and the impact that effective counseling can have on student success, specifically in the area of CTE. They caution however, that in most schools in America, the

student to counselor ratio is unmanageable (p. 26). The ratio of 500:1 students to counselor is approximate to the ratio at both schools within the CISD. Counselor 1 stated it this way, "we're at a campus where there's one counselor to 400 kids. So to drive that home and have the quality conversations that you guys are talking about. I mean, my alpha [assigned students] here is 400 plus kids. So to have those conversations, it's going to take double what we have to get our job done and have time to talk to kids about these programs and what they do and how they could really benefit them." Also, teachers in this study expressed a feeling that counselors did not always fully understand the CTE pathways, the sequence of courses, or the goals of the CTE program as a whole. The counselors at both schools articulated that in many cases, decisions have to be made in terms of scheduling to try and get a student the necessary credits to graduate while sacrificing participation in a CTE pathway. These concerns align with Symonds, Schwartz, & Ferguson's (2018) discussion of the challenges and influence of counselors in this area.

Finding 2B: *The faculty perceive that the following factors influence a student's decision to enroll in a CTE pathway: friends and family, school teacher or counselor influence the program's ability to deliver relevant and hands-on CTE courses.* *Finding 2C:* *When it comes to choosing a pathway, the teachers overestimate the influence that families wield in the choice of a student's pathway and teachers underestimate the value that students place on the CTE program's ability to position them for post-secondary readiness.*

These two findings demonstrate a lack of understanding by the faculty in regards to the most influential motivators for students in determining whether to enroll and participate in CTE pathways. This finding demonstrates a need for the CISD to improve stakeholder feedback, especially from students, to ensure that CISD administration and faculty have a pulse of the students' experience at school. Murphy (2010) articulates the importance of relationships being established between school personnel and students in an effort to ensure students have the greatest opportunity of success at school. Murphy describes the importance of schools balancing "care and academic press" to help students feel a sense of place and belonging and ultimately promote school improvement as a whole. This finding highlights a need for the CISD CTE program specifically to be intentional in terms of gaining this insight of the students' lived experience and what factors are influencing their day-to-day decisions. The relationships that can

emerge from this work will help to improve the CISD overall while directly benefiting the CTE program.

Finding 3A: When students completed the pathway they shared the following traits: the value of CTE courses was clearly articulated; CTE courses were connected to students' job desires; students felt agency in choosing the pathway; students formed meaningful relationships with CTE teachers.

This finding again articulates the importance of relationships being established as described above from the work of Murphy (2010), but additionally brings to focus the importance of the CISD district leadership working to craft and articulate a shared vision and goals for the program as a whole. Students who experienced success had a clear understanding of the "why" but this was not clearly articulated across the board. There were numerous student responses expressing they did not even know they were in a CTE pathway, or what it meant to be in CTE. Establishing and sharing a collective vision and goals for the program will help benefit the outcomes as well as the student experience within the program. Counselor 2 articulated it this way, "We don't know, we may be hurting our CTE program here. If our central office said, 'hey, once they choose that pathway, that's it.' And if they put it in writing, and we know that it's there and we have backup, and we have somebody that like if we were to tell them no, you can't get out of this, and then they go to Central Office or somewhere and then we get in trouble and they say, well, they asked to get out and you didn't. Well okay, then put in writing that they can't, so, you know, we need support."

There is a lack of clarity around what the goals of CTE are within the district. The district level personnel who were included in this program evaluation presented a "big picture" understanding of the goals and vision for CTE within the CISD but these goals and vision did not seem to be well understood or vocalized at the building levels. "I think the message is still trickling down, to be honest. CTE teachers have an awareness, but in terms of other teachers, not so much" (Admin 8, Interview). Building administration were able to articulate that CTE is "an agenda item" at district leadership meetings, but it seemed to be one of many competing points of focus. Teachers were unable to share the goals and vision which were articulated at the higher levels of CISD leadership.

For the program and district to function toward the collective goals, the vision and mission of the program and where it aligns with the overarching district vision and mission must be clearly established. Everyone needs to be able to articulate the "why" and to some degree the "how" if the performance of the organization is to be optimal. "I think our district needs to commit if they're really going to do it right," stated Counselor 4. One respondent stated it this way, "They're not forward thinking. They are just like surviving. It's just like you're surviving the next year instead of like, okay, what kind of programs can we build? What can we do? How can we turn our community around?" Collective vision fosters "buy-in" from stakeholders (Carton, 2017). When this collective vision and "buy-in" are established, stakeholders are far less likely to lose track of pursuing the stated objectives and collectively working to accomplish the goals at hand (Weick, 1993).

Finding 3B: Faculty perceive that the most influential factors that contribute to students completing a CTE pathway are: students recognize the value of completing the CTE pathway and that students in the CTE pathway experience a strong sense of belonging.

This finding continues to demonstrate the importance of clear vision and mission setting by the CISD to ensure that the program goals and desired outcomes are clearly articulated from the earliest stages of communication with students and parents. As stated as an earlier finding, students in this study who chose to participate and complete CTE pathways had a clear understanding of how the pathway aligned with their post secondary goals. Greater emphasis on ensuring these opportunities can be placed on the communications from the CISD in regard to articulating the "why" of CTE and how it benefits students in their post-secondary endeavors. Work needs to be done on district level strategic planning where CISD personnel can clearly articulate a shared vision regarding the place of CTE and the expectations and goals of successful implementation and performance (Carton, 2017).

Finding 3C: When students did not complete the pathway they shared the following traits: students felt that they did not have a clear sense of the pathway they were in; CTE classes were not engaging (dissatisfaction with computer-based delivery); pathways they were interested in did not exist.

Again, the importance of clear communication and guidance emerges as a finding highlighting the importance of guidance counseling for students to have a clear understanding of

their pathways, and understanding the big picture of their academic schedule and how it leads to their post-secondary opportunities (Symonds, Schwartz, & Ferguson, 2011). Additionally, the importance of relationships through care, and engagement through relevant academic instruction, is highlighted as a key finding (Murphy, 2010). Students often report that they choose CTE courses due to the relevance to their post-secondary goals as well as the opportunity to work with relevant, hands-on learning experiences (Gottfried & Plasman, 2018). Students in the CISD who did not complete the CTE pathway they began reported a lack of engaging course work as a strong influencer of their decision to leave the pathway. Specifically, students reported the emphasis of "computer-based delivery" of content in the foundational courses in middle school as a negative influencer. This finding should be taken under consideration by the CISD CTE administrators, building administrators, and CTE teachers to work to identify opportunities to provide students with relevant, hands-on learning experiences beginning in the foundational middle school courses and limiting the computer-based instruction as much as possible so as not to lose potential students due to a lack of interest and engagement.

Finding 3D: *Faculty perceive that the most influential factors that contribute to students not completing a CTE pathway are: Students not understanding that they were in a pathway; CTE classes were not engaging (hands-on activities occur later in the pathway); classes were overcrowded and courses filled up.*

As outlined with the previous finding, faculty responses indicate an understanding of the influential factors contributing to students' decisions to leave their CTE pathways. With a collective understanding from the faculty, the necessary adjustments to recruitment, guidance, and engaging instructional practices should not be difficult to adjust and implement to address these factors negatively influencing students' decisions to remain in a pathway toward completion.

Finding 4A: *Students perceive the following benefits to participating in a CTE pathway: CTE helps students explore future career paths and find their passion; and CTE contributes to a student's positive sense of connection to school and teachers.*

Murphy (2015) describes the importance of schools providing as many "tethers" as possible to keep students engaged in school, and therefore, helping them have a greater sense of belonging and place. This connection of the student to the school supports the student and

decreases the likelihood of them falling through the cracks. Students who are engaged and cared for (Murphy, 2010) are more likely to be successful in school. Further, students immersed in CTE programs of study gain greater "soft skills" beyond just simply the content being delivered in the classroom with CTE participation benefiting students by helping improve skills and attributes such as career planning, decision-making, listening skills, integrity, creativity punctuality, positive behavior, conscientiousness, grit and self-efficacy (Cheng & Hitt, 2018; Symonds, Schwartz, & Ferguson, 2011). CISD needs to continue to build these positive relationships and connections to school for all students within the CISD. The CTE program is a wonderful avenue to reach many students with approximately seventy percent of students in high school in the CISD taking at least one course in a pathway of study. This means the CISD CTE program has the opportunity to help "tether" students and increase their sense of belonging and positive connection to almost two-thirds of the high school students. This is a tremendous opportunity that should be leveraged to improve the lived experience of students within the CISD and help them reach their fullest potential for pursuing their post-secondary goals.

Finding 4B: Faculty perceive the following benefits for students who participate in a CTE pathway: CTE helps students explore future career paths and find their passion; CTE helps students grow in confidence; CTE participation helps students develop 'soft skills'; and CTE students and teachers develop meaningful relationships.

Faculty have an awareness of the benefits students participating in the CISD CTE program gain from their involvement with the program. As stated previously, the leadership and staff of the CISD CTE program need to leverage this opportunity to reach approximately seventy percent of the student body and help expand the number of students who are choosing to stay and complete their CTE pathway of study. The findings of this study provide great insight for the CISD to focus their attention on the most relevant areas impacting students' decisions to enroll, complete, and/or depart a program of study. By using this program evaluation as a tool to improve the overall program experience for students, the CISD can increase the number of students choosing to complete their CTE pathway, and ultimately provide a more positive secondary school experience for all students involved in the program which can lead to many positive academic and post-secondary benefits for students (Cheng & Hitt, 2018; Dougherty, Gottfried, & Sublett, 2018; Gottfried & Plasman, 2018; Symonds, Schwartz, & Ferguson, 2011).

CONCLUSION

With the prevalence of CTE programs steadily growing across K-12 settings and research demonstrating the benefits of CTE participation, it is particularly useful for the Capstone Independent School District to seek a program evaluation of their CTE pathways as they aim to improve the offerings and experiences for all students. The results of our project demonstrated that the CISD has many positive attributes to their program from which to launch their next phase of growth. Our results found that the continued stigma of career and technical education programs as less valuable than a college prep curriculum, coupled with uneven robust levels of the program offerings, are areas that must be addressed by the CISD. We believe that implementation of our recommendations will provide an immediate boost to both the understanding of, and participation in, CTE pathways.

RECOMMENDATIONS FOR PRACTICE

Immediate Recommendations (1-3 months)

1. **Develop processes to collect and track CTE student participation data by sub groups to ensure equitable access.** While the Capstone district is required to provide course enrollment data to the state, the district would benefit from collecting more robust information on students who enroll in CTE. The researchers were not able to adequately answer question 1 of this project because the district did not have a process by which to collect and analyze data around enrollment, persistence in a program of study, and completion of the pathway. This recommendation is supported by best-practice analysis from CTE researchers (Cheng & Hitt, 2018; Dougherty, 2016; Dougherty, Gottfried, & Sublett, 2018; Gottfried & Plasman, 2018; Symonds, Scwhartz, & Ferguson, 2011).

2. **Launch a district-wide education campaign around the mission and vision for CTE in the district.** The end-result of this campaign is to provide stakeholders with clear, concise, and consistent messaging about how CTE functions in the district. As part of this campaign, district-level administrators should work with building-level leaders to update and publish a CTE handbook that outlines the vision, policies, and practices for the CTE program. This handbook should be easily accessible on the district website and updated on an annual basis. A second CTE informational document (or website) should be developed for students. This document should explain the pathway process and advertise classes.

3. **Convene a committee of building-level administrators and CTE teachers to evaluate the perception of CTE in the high schools** (Dougherty, 2016, Giani, 2019). Members should walk the halls and consider ways that the messaging in the school buildings does and does not reflect the district's commitment to the CTE program. The researchers observed that posters of graduating seniors attending colleges were placed in prominent locations at the schools. The researchers observed that there were no posters celebrating students who chose post-secondary careers, military service, or trade school. This committee might also conduct surveys of teachers, students, and parents about their perceptions of the CTE program. And it would ensure that the CTE program is given due recognition at commencement and other events.

4. **Explore alternative definitions of CTE Pathway success beyond "completion" of a pathway.** Many students reported that one of the benefits of participating in CTE was that the courses allowed them to explore their interests. This process led to them confirming an already considered career path or choosing a new direction. Leaders should consider ways in which those students who choose new pathways are considered completeres of the CTE program.

Extended Recommendations (12-24 months)

5. **Appoint an Assistant Principal for CTE at each high school.** This person should be responsible for: (i) overseeing the implementation of the CTE program at the school; (ii) monitoring course scheduling and teacher workload; (iii) overseeing CTE budget, including the purchasing of CTE materials; (iv) overseeing CTE teacher evaluations and execution of professional development for CTE teachers; (v) organizing middle school outreach initiatives where CTE teachers engage and recruit middle school students; and (vi) leveraging CTE to increase students' sense of belonging.

Other important tasks that the District CTE personnel should oversee include:

6. **Create and execute an annual process for surveying students about their career interests and tailor CTE pathway offerings to those interests** (Dougherty, 2016; Symonds, Schwartz, & Ferguson, 2011)**.** One teacher observed, "We have a challenge in this district to where we drive our programs based on what the adults want, not what the students want." The district-level leaders would work with building administrators, specifically the CTE assistant principal, to gather the interest inventory information. Additionally, they would work to assess the student data, assess market data and projections, and respond to market trends around labor shortages and local needs.

7. **Implement an annual training and support colloquium for counselors and principals.** During this annual meeting counselors and principals would convene to discuss barriers and challenges associated with CTE placement. This meeting would also review CTE retention rates and strategies for supporting students to continue in pathways or choose new pathways (Symonds, Schwartz, & Ferguson, 2011).

8. **Maintain relationships with, and collect data about, CTE alumni.** Organize meetings and classroom visits where program alumni return to the school and speak about ways that the CTE program impacted their life and career choices.

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[3] The pseudonym *Capstone Independent School District* is used to maintain confidentiality of our research site. Names of the town and high schools have also been changed to maintain confidentiality.

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APPENDIX A

CISD Student Survey Instrument

School, Grade Level, and Demographic Information

    Q1. Which CISD school do you attend?
        A. Capstone High School B. Capstone Creek High School

    Q2. What grade are you currently enrolled in?
        A. 9th B. 10th C. 11th D. 12th

    Q3. Which of the following best identifies your gender?
        A. Male
        B. Female
        C. I prefer not to answer

    Q4. Which of the following best identifies your race?
        A. American Indian
        B. Asian
        C. Black
        D. Hispanic
        E. Native Hawaiian/Pacific Islander
        F. White
        G. Two or more races
        H. I prefer not to answer

CTE Career Pathway Enrollment Information and Student Participation Influencers

Q5. Are you currently enrolled in a CISD CTE Pathway? (If yes, advance to Q6. If no, skip to Q7) A. Yes B.
    No C. I don't know

        Q6. Which CISD CTE Pathway are you enrolled in? (Upon completion, skip to Q10)
            A. Agriculture, Food, and Natural Resources
            B. Architecture & Construction
            C. Arts, Audio-Video Technology, and Communications
            D. Business Management & Administration
            E. Hospitality & Tourism
            F. Culinary
            G. Transportation, Distribution & Logistics
            H. Health Science
            I. Law, Public Safety, Corrections, and Security
            J. Project Lead the Way Engineering
            K. Robotics
            L. Systems Go -- Rockets
            M. I don't know which CTE Pathway I am currently enrolled in.

    Q7. Have you previously been enrolled in the CISD CTE Pathway? (If yes, advance to Q8. If no, skip to
    Q13)
        A. Yes B. No C. I don't know

        Q8. Which CISD CTE Career Pathway Program were you previously enrolled in?
            A. Agriculture, Food, and Natural Resources
            B. Architecture & Construction

C. Arts, Audio-Video Technology, and Communications
D. Business Management & Administration
E. Hospitality & Tourism
F. Culinary
G. Transportation, Distribution & Logistics
H. Health Science
I. Law, Public Safety, Corrections, and Security
J. Project Lead the Way Engineering
K. Robotics
L. Systems Go -- Rockets
M. I don't know which CTE Pathway I was enrolled in.

Q9. Why did you choose to stop your participation in the CISD CTE Pathway Program? (Upon completion, skip to Q14)
Check all that apply:
 Course schedule
 Extra-curricular activities
 Family influence
 Friend influence
 Teacher/Coach/Staff influence
 Work/employment
 Lack of engagement in coursework
 I never intended to complete the pathway
  After participating in a class I just didn't see the point in continuing
 Other:
  Please explain

Q10. Are you currently enrolled in the same CTE program that you began your freshman year? (If yes, skip to Q12. If no, advance to Q11)
 A. Yes B. No
Q11. What factors have influenced you to change your Career Pathway enrollment? (Upon completion, skip to Q14)
Check all that apply:
 Course schedule
 Extra-curricular activities
 Family influence
 Friend influence
 Teacher/Coach/Staff influence
 Work/employment
 Lack of engagement in coursework
 I never intended to complete the pathway
  After participating in a class I just didn't see the point in continuing
 Other:
  Please explain

Q12. What factors are motivating you to finish the CISD CTE Career Pathway Program? (Upon completion, skip to Q14)
Check all that apply:
 Course schedule
 Extra-curricular activities
 Family influence
 Friend influence
 Teacher/Coach/Staff influence

Work/employment
Engagement in the coursework
I see the relevance of the coursework
This program is preparing me for my post high school plans
Other:
      Please explain

Q13. What factors influenced you to not participate in the CISD CTE Career Pathway Program?
    Check all that apply:
        I am not aware of the program
        Course schedule
        Extra-curricular activities
        Family influence
        Friend influence
        Teacher/Coach/Staff influence
        Work/employment
        Lack of engagement in coursework
        I never intended to complete the pathway
        After participating in a class I just didn't see the point in continuing
        Other:
            Please explain

Student Perceptions of the CTE Career Pathway Program
    Q14. Which of the following influenced your decision to enroll in the CTE Pathway Program? (Check all that apply)
        I have never enrolled in CTE
        Family
        Friends
        Teachers
        Guidance Counselor
        Interest in Pathway Topic
        Post High School Career Interest
        I thought the courses would be easy
        Other
            Please explain

Student Self-Reported Level of Agency, Competencies, and Integrated Identity as a Result of Program Participation
    Q15. Which of the following benefits have you experienced as part of your participation in the CTE program? (Check all that apply)
        Using effort and practice to grow
        More clarity about my career goals after high school
        Seeking challenges
        Growing from setbacks
        Building confidence
        Finding personal relevance
        Meeting benchmarks
        Seeking feedback
        Actively participating in classes
        Building relationships
        Understanding my impact on my community
        I do not see any benefit to the CTE program
            Please explain

Student Perceptions for Increasing CTE Career Pathway Participation and Completion Q16. Which of the following do you believe the CISD could utilize to increase student participation in the CTE Career Pathway Program?

    A. Provide better guidance about the program and courses in 8th grade

    B. Provide better guidance about the program and courses in 9th grade

    C. Offer student tours of the CTE facilities and classrooms

    D. Offer students who are participating to offer testimonials about their experiences

    E. Provide better communication to parents/guardians about the program and courses F.

    Other:

          Please explain

Q17. Which of the following do you believe the CISD could utilize to increase student completion of the CTE Career Pathway Program?

    A. Provide better guidance about the program and courses in 8th grade

    B. Provide better guidance about the program and courses in 9th grade

    C. Offer student tours of the CTE facilities and classrooms

    D. Offer students who are participating to offer testimonials about their experiences E.

    Provide better communication to parents/guardians about the program and courses F.

    Other:

          Please explain

Student Survey Protocol

Parents/guardians will be provided information about the purpose of the study and the opportunity to discuss with their child the option to opt-out of the survey portion in advance of the survey being administered. CTE administration will send the parent information and opt out email no later than October 11. Parents have until October 15 to opt out. Researcher contact emails are included in the parent communication to allow for questions to be asked.

CTE administration will email all high school students the participant recruitment email and the survey on October 18. The survey will begin with a statement that participation is voluntary and anonymous. It will also provide an opportunity for participants to decline participation. Surveys will be distributed no later than October 18; participants will have four weeks to complete the survey. A follow-up email will be sent one week after the initial distribution, and another follow up three weeks after the initial distribution.

APPENDIX B

CISD Teacher Survey Instrument

School and Assignment Information

    Q1. Which CISD school do you currently work at?

        A. Capstone High School B. Capstone Creek High School

    Q2. Which of the following best describes your role within the CISD?

        A. Traditional classroom teacher

        B. CTE Teacher

        C. Administration

        D. Guidance Department

        E. Support Staff

Staff Perceptions of the CTE Career Pathway Program

    Q3. What is your perception of the CISD CTE Career Pathway Program?

        A. It is a great program that helps prepare our students for post high school

        B. It is good program but I do not feel that it prepares our students very well

        C. I feel that it works for some of our students but takes away from the academic opportunities for
            those planning to attend college

        D. I feel the program is a waste of academic time for our students

        E. Other:

                Please explain

    Q4. Do you encourage students to enroll in the CISD CTE Career Pathway Program?

        A. Yes B. No

    Q5. Do you discourage students from enrolling in the CISD CTE Career Pathway Program? (If yes,
answer Q6. If no, skip to Q7.)

        A. Yes B. No

        Q6. Please explain your reasoning for discouraging student participation in the CISD CTE Career
        Pathway Program. (Open-ended written response)

    Q7. What factors do you believe influence students' decisions to enroll in the CISD CTE Career Pathway
Program?

        Check all that apply:

            Course schedule

            Extra-curricular activities

            Family influence

            Friend influence

            Teacher/Coach/Staff influence

            Work/employment

            Engagement in the coursework

            I see the relevance of the coursework

            This program is preparing me for my post high school plans

            Other:

                Please explain

    Q8. What factors do you believe influence students' decisions to complete the CISD CTE Career Pathway
Program?

        Check all that apply:

Course schedule
Extra-curricular activities
Family influence
Friend influence
Teacher/Coach/Staff influence
Work/employment
Engagement in the coursework
I see the relevance of the coursework
This program is preparing me for my post high school plans
Other:
       Please explain

Q9. What factors do you believe influence students' decisions to participate in, but not complete the CISD CTE Career Pathway Program?
    Check all that apply:
        Course schedule
        Extra-curricular activities
        Family influence
        Friend influence
        Teacher/Coach/Staff influence
        Work/employment
        Lack of engagement in coursework
        I never intended to complete the pathway
        After participating in a class I just didn't see the point in continuing
        Other:
            Please explain

Q10. What factors do you believe influence students' decisions to choose to leave the CISD CTE Career Pathway Program?
    Check all that apply:
        Course schedule
        Extra-curricular activities
        Family influence
        Friend influence
        Teacher/Coach/Staff influence
        Work/employment
        Lack of engagement in coursework
        I never intended to complete the pathway
        After participating in a class I just didn't see the point in continuing
        Other:
            Please explain

Staff Perceptions of CTE Career Pathway Program Participation Benefits
    Q11. Do you believe there are benefits to participating in the CISD CTE Career Pathway Program? (If yes, skip to Q13. If no, advance to Q12.)
      A. Yes B. No
        Q12. Which of the following best describes your perception of no benefit to participating in the CISD CTE Career Pathway Program? (Upon completion, advance to Q15)
          A. I do not see the relevance of the program
           B. The program doesn't meet the needs of our students' for post high school plans
           C. The classes are not engaging and aren't relevant to their high school experience
          D. I don't think the CTE program is rigorous enough to prepare our students for post high school

E. I really don't know about the program
F. Other:
Please explain

Q13. Which of the following best describes your perception of the benefits associated with participating in the CISD CTE Career Pathway Program?
A. I believe the program is very relevant to our students' post high school plans
B. The program helps teach responsibility
C. The program helps teach problem solving
D. Our students feel like they belong in the program
E. Being in the program really helps our students be themselves
F. Other:
Please explain

Staff Perceptions for Increasing CTE Career Pathway Participation and Completion

Q14. Which of the following do you believe the CISD could utilize to increase student participation in the CTE Career Pathway Program?
A. Provide better guidance about the program and courses in 8th grade
B. Provide better guidance about the program and courses in 9th grade
C. Offer student tours of the CTE facilities and classrooms
D. Offer students who are participating to offer testimonials about their experiences
E. Provide better communication to parents/guardians about the program and courses
F. Other:
Please explain

Q15. Which of the following do you believe the CISD could utilize to increase student completion of the CTE Career Pathway Program?
A. Provide better guidance about the program and courses in 8th grade
B. Provide better guidance about the program and courses in 9th grade
C. Offer student tours of the CTE facilities and classrooms
D. Offer students who are participating to offer testimonials about their experiences
E. Provide better communication to parents/guardians about the program and courses
F. Other:
Please explain

Faculty and Staff Survey Protocol

Faculty and staff will be provided information about the purpose of the study and the option to opt-out of the survey portion in advance of the survey being administered.

District CTE administration will distribute information to all relevant faculty and staff members via the district's email system with researcher contact information to allow for questions to be asked.

Surveys will be administered via the district's email system. They will begin with a statement that participation is voluntary and anonymous. It will also provide an opportunity for participants to decline participation. Surveys will be distributed no later than October 18; participants will have four weeks to complete the survey. A follow-up email will be sent one week after the initial distribution, and another follow up three weeks after the initial distribution.

APPENDIX C

Student Participant Recruitment Email Letter

Dear Student,

As part of our doctoral studies at Vanderbilt University, we are working with the district's Career and Technical Education (CTE) Department as they consider how to make adjustments to the CTE program that improve student completion rates, increase "post high school credentialing for all", and meet the goals the district has articulated. We would like to survey students regarding their involvement or lack of involvement in the CTE program. The purpose of our study is to identify the factors that shape students' decisions to enroll in CTE; persist (or not) in the CTE program; and to describe the conditions and contexts that support students' personal, academic, and career goals.

The survey contains questions about your choice of a Career and Technical education pathway and why you have decided to enroll, remain in and/or leave the CTE program; we will ask your gender, racial identity, and grade. Each survey will take no more than 15 minutes; and you will not miss any instruction time in order to participate. A random selection of students will be asked to participate in a focus group interview. Completion of the survey and interview is voluntary and your responses will be kept anonymous.

If you have any questions about the project, please contact Ronald O'Dwyer, who is a Vanderbilt graduate student via email at ronald.r.odwyer@vanderbilt.edu or our capstone advisor, Dr. Claire Smrekar at claire.smrekar@vanderbilt.edu.

Sincerely,
John Barnett, Kimberly Townsend, and Ronny O'Dwyer

Student Focus Group Participant Information

Participation in this focus group interview is voluntary and your responses will be kept anonymous.

As part of our doctoral studies at Vanderbilt University, we are working with the district's Career and Technical Education (CTE) Department as they consider how to make adjustments to the CTE program that improve student completion rates, increase "post high school credentialing for all", and meet the goals the district has articulated.

Thank you for taking the time to speak with us today so that we can learn about the CTE program from your perspective. We are meeting with you all today to learn more about what influenced your decisions to enroll in CTE, remain (or not) in the CTE program, and how you feel you benefit from your participation in CTE.

Guidelines for the Focus Group Interview (Breen, 2006):

- If you feel uncomfortable during the meeting, you have the right to leave or to pass on any question. There is no consequence for leaving. Being here is voluntary.
- The meeting is not a counseling session or support group.
- Keep personal stories "in the room"; do not share the identity of the attendees or what anybody else said outside of the meeting.
- Everyone's ideas will be respected. Do not comment on or make judgments about what someone else says, and do not offer advice.
- One person talks at a time.
- It's okay to take a break if needed or to help yourself to food or drink.
- Everyone has the right to talk. The facilitator may ask someone who is talking a lot to step back and give others a chance to talk and may ask a person who isn't talking if he or she has anything to share.
- There are no right or wrong answers.

We will be taking notes about what is discussed but individual names or identifying information will not be attached to comments. We would like to record our conversation today to make sure we capture all of our learning. The recording will only be heard by our team as we review our notes. We have planned this interview to last no longer than 45 minutes. If at any time you feel uncomfortable and wish not to answer the question or to end the interview, you have the right to not respond or end the interview.

If you have any questions about the project after today, please contact Ronald O'Dwyer, who is a Vanderbilt graduate student via email at ronald.r.odwyer@vanderbilt.edu or our capstone advisor, Dr. Claire Smrekar at claire.smrekar@vanderbilt.edu.

Sincerely,
John Barnett, Kimberly Townsend, and Ronny O'Dwyer

CISD Student Interview Protocol

Student Recruitment and Timeline
Interviews will be conducted on campus tentatively between November 8-12, 2021.

Participants in the interview portion of the study will be selected through a stratified convenience sampling process. School district officials will assist with identifying prospective student candidates to be considered for the interview pool to ensure the pool is reflective of school and district demographics. District administration will email parent consent forms on October 11; those forms will be due back by November 8.

By October 1 the research team will provide school officials with descriptions of the characteristics of students researchers wish to interview, including a mix of gender, race/ethnicity, grade level, and participation status within the district CTE program. Only those students with signed parental consent forms will be eligible for selection by the researchers for participation in the interviews.

Focus Group Introduction

My name is _____, and I am a Vanderbilt graduate student. (*Introduce co-facilitator.)* We are very grateful that you are taking the time to speak with us today so that we can learn about the CTE program from your perspective. We are meeting with you all today to learn more about what influenced your decisions to enroll in CTE, remain (or not) in the CTE program, and how you feel you benefit from your participation in CTE.

Basic Guidelines

Review the following guidelines for the meeting (Breen, 2006):

  a. If you feel uncomfortable during the meeting, you have the right to leave or to pass on any
      question. There is no consequence for leaving. Being here is voluntary.
  b. The meeting is not a counseling session or support group.
  c. Keep personal stories "in the room"; do not share the identity of the attendees or what anybody
      else said outside of the meeting.
  d. Everyone's ideas will be respected. Do not comment on or make judgments about what someone
      else says, and do not offer advice.
  e. One person talks at a time.
  f. It's okay to take a break if needed or to help yourself to food or drink (if provided). g. Everyone
      has the right to talk. The facilitator may ask someone who is talking a lot to step back and give
      others a chance to talk and may ask a person who isn't talking if he or she has anything to share. h.
      There are no right or wrong answers.

We will be taking notes about what is discussed but individual names or identifying information will not be attached to comments. We would like to record our conversation today to make sure we capture all of our learning. The recording will only be heard by our team as we review our notes. We have planned this interview to last no longer than 45 minutes. If at any time you feel uncomfortable and wish not to answer

the question or to end the interview, you have the right to not respond or end the interview. Before we begin, do you have any questions?

Focus Group Questions

Research Buckets	Questions

Intro Questions
 	
To provide comfort, build rapport and trust
 	
Index Card Activity
modified from Millis (2004)
	● What is your current grade?
	● How did you find out about this focus group?
	  ○ Why did you agree to join us?
	● What has been your experience with the CTE program?
	  ○ How many CTE courses have you taken?
	  ○ Are you on pace to complete a CTE pathway?
	  ○ What do you like most about the CISD CTE offerings?
	
	● *Students are handed an index card. Working independently, they jot down on the card a word or phrase to describe the CTE program and a number from one to five to indicate their satisfaction level.*
	● *Students indicate, round-robin fashion, their responses.*

Procedure modified from Millis (2004)
 	
Two types of general questions then follow, some that everyone responds to (round-robin) and some where anyone may answer
 	
Factors of influence
 	
Enrollment in CTE
Participation vs. Completion
Departure from CTE
	All students
	● What does being enrolled in a CTE pathway mean?
	  ○ What is the process for enrolling? Is the process different from other programs that CISD offers?
	● What kind of exposure and explanations of the CTE program did you receive before making a decision to enroll or not?
	  ○ Did you have enough information?
	  ○ Did you receive information at the right time?
	  ○ What else would you have wanted to know before making a decision?
	● Whose opinions and perspectives mattered most when deciding on whether to enroll in a CTE pathway?
	  ○ How did your parents influence your decision?
	  ○ How did your counselors influence your decision?
	  ○ How did your teachers influence your decision?
	  ○ How did your friends influence your decision?
	  ○ Who, or what, else influenced your decision to participate in CTE?
	
	● What could CISD do to increase student participation in the CTE Program?
	  ○ Would more guidance and information in middle school make a difference?
	  ○ What changes would you recommend to the counseling and guidance for incoming 9th graders?

	○ What connections do students have with alumni or older students who have completed CTE pathways? Would their input make a difference? Students in 9th - 12th grade who are fluid in their pathway participation ● How well did you understand each pathway before enrolling? ● What caused you not to commit to one specific pathway? ○ Did you choose every CTE course that you've taken? If not, what was the result of being placed into a course that you did not choose? ○ Were you encouraged to try different pathways? ○ Did you find any of the CTE pathways more difficult to complete? Did it interfere with other school activities? Did it require more personal time? ○ Did the CTE program meet your expectations? Students in 11th and 12th grade on track for completing a CTE pathway ● When do students have to commit to a specific pathway?

Benefits of CTE for Students
 	
Agency, competence, and identity development
Post-graduate options and readiness
	● Why did you decide to complete your specific CTE pathway?
	    ○ How did you know which one would be the right fit for you?
	    ○ Did you fully understand your CTE pathway before you enrolled?
	    ○ In what ways, has your CTE pathway met your expectations? In what ways, has it not?
	● What has had the most impact on your success in the CTE program?
	    ○ What kind of support is available to you?
	    ○ Did you ever consider leaving your CTE pathway?
	        ■ If so, what caused you to stay?
	    ○ What kind of support do you receive from your counselors in regards to choosing courses each year or whether to remain in the CTE program?
	
	Students in 11th and 12th grade who departed the CTE program
	
	● When do students have to commit to a specific pathway?
	    ○ How did you know which one would be the right fit for you?
	    ○ Why did you decide to depart from your

	specific CTE pathway? ○ Did you fully understand your CTE pathway before you enrolled? ○ In what ways did your CTE pathway fail to meet your expectations? ○ Who, or what, had the most impact on your decision to depart from the CTE program? ○ What could have caused you to remain in your program? All students ● How has participation in the CTE program benefited you? ○ How have students grown as a result of their participation in the CTE program? ○ In what ways have you improved as a student? ○ In what ways have you learned more about yourself? ○ In what ways has it impacted your relationships? ○ In what ways has it impacted your post-high school plans? ○ How else has the CTE program been beneficial to you? ● If you are not in a CTE pathway or do not take CTE courses, do you see any benefits of CTE? ○ In what ways has it impacted the entire student body? ○ In what ways has it been beneficial to your school as a whole?
Closing	● Is there anything else about the CTE program that you feel strongly about and want to share before we wrap up? ○ Is there anything else you think we should know about what influences students' decisions to enroll in, and complete, a CTE pathway? ○ Is there anything you love about the CTE program that you haven't been able to share? ● Are there any challenges with completing a CTE pathway that we should know about?

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APPENDIX E

CISD Staff Interview Protocol

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Staff Recruitment and Timeline
Interviews will be conducted via Zoom between October 18 - November 1, and on campus tentatively between November 8-12, 2021.

Participants in the interview portion of the study will be selected through a stratified convenience sampling process. School district officials will assist with identifying prospective student candidates to be considered for the interview pool to ensure the pool is reflective of school and district demographics. District administration will email invitations to participate and directions on how to sign up for interview slots on October 18. Participants will have the opportunity to choose a Zoom or in-person interview based on their preference and availability.

By October 1 the research team will provide school officials with descriptions of the characteristics of faculty and staff researchers wish to interview, including a mix of gender, race/ethnicity, grade level, and participation status within the district CTE program.

Introduction

My name is _____, and I am a Vanderbilt graduate student. I am very grateful that you are taking the time to speak with me today so that we can learn about the CTE program from your perspective. I would like to record our conversation today to make sure we capture all of our learning. Would that be okay? We have planned this interview to last between 30 - 45 minutes. If at any time you feel uncomfortable and wish not to answer the question or to end the interview, you have the right to not respond or end the interview. Before we begin, do you have any questions?

Interview Questions

Research Buckets	Questions

Intro Questions
To provide comfort, build rapport and trust
	● What is your current role?
	    ○ What are your core responsibilities?
	    ○ In what ways does your role intersect directly with students?
	    ○ How long have you worked at CISD?
	    ○ How long in your current role?
	● Why did you choose to work in the CTE department?

Factors of influence
 	
Enrollment in CTE, Participation vs. Completion, Departure from CTE
	All staff
	● What does being enrolled in a CTE pathway mean?
	● How do students enroll in a CTE pathway?
	    ○ When does the recruitment for CTE begin?
	    ○ When do students have to commit to a specific pathway?
	    ○ What kind of exploration are students able to have before committing to a pathway?
	● What influences students' decision to enroll in CTE pathways?
	    ○ How do parents influence a student's CTE participation?
	    ○ How do school counselors influence a student's CTE

participation?
- ○ How do teachers influence a student's CTE participation?
  - ■ CTE teachers, non-CTE teachers?
- ○ How do friends and peers influence a student's CTE participation?
- ○ Who or what else influences a student's CTE participation?

CTE District Administrators and Building Principals
- ● Does the district have other program offerings that high school students elect (i.e. IB, magnet)?
  - ○ If students are not in a CTE pathway or another program, do they receive a general diploma?
  - ○ Do students in the CTE program meet the general requirements for college entrance?
- ● What are the goals of the CTE program?
  - ○ How are those goals accomplished in HS? In MS? In Elementary School?

Counselors
- ● How do you approach advising students on the CTE program?
  - ○ How do you gauge a student's fit for a particular pathway?
  - ○ Do all pathways have the same prerequisites or requirements for entry?
  - ○ Could you talk me through the process you take when counseling incoming 9th grade students on the CTE program?
  - ○ How do you involve parents in the counseling and enrollment process for CTE pathways?
- ● How does the process for enrolling in a CTE pathway differ from enrollment in other programs or courses?
- ● How well do you think students understand each pathway before enrolling?
  - ○ What information do students receive to make enrollment decisions?
  - ○ When do they receive it?
  - ○ Do students have opportunities to shadow or experience a pathway before enrolling?
- ● Does CISD have career counselors?
  - ○ If so, what career planning occurs?
  - ○ If so, how is their work different from yours?
  - ○ If so, what involvement do they have in the CTE program?
- ● What causes students to transfer from one CTE pathway to another?
  - ○ Are students enrolled in CTE courses without choosing them? ○ Are students encouraged to try different pathways?
  - ○ Can students enter and complete a CTE pathway after 9th grade?
  - ○ Is it possible for students to complete more than one pathway during their 4 years of high school?
  - ○ Do all pathways offer post-graduate work opportunities?
- ● What causes students to leave the CTE program altogether?
  - ○ Are they any aspects of the high school experience that

make being in a CTE pathway difficult?
- What trade offs do students make when they choose to complete a CTE pathway?

CTE Teachers
- What leads to student success in the CTE program?
  - Are students more successful in some pathways than others? If so, why?
- How prepared are students for the CTE pathway?
- How well do you think student expectations of the program match their experience?
- In what ways do students have difficulty with CTE pathways?
- What does student support look like in the CTE program?

Counselors
- How do you approach advising students on the CTE program?
  - How do you gauge a student's fit for a particular pathway?
  - Do all pathways have the same prerequisites or requirements for entry?
  - Could you talk me through the process you take when counseling incoming 9th grade students on the CTE program?
  - How do you involve parents in the counseling and enrollment process for CTE pathways?
- How does the process for enrolling in a CTE pathway differ from enrollment in other programs or courses?
- How well do you think students understand each pathway before enrolling?
  - What information do students receive to make enrollment decisions?
  - When do they receive it?
  - Do students have opportunities to shadow or experience a pathway before enrolling?
- Does CISD have career counselors?
  - If so, what career planning occurs?
  - If so, how is their work different from yours?
  - If so, what involvement do they have in the CTE program?
- What causes students to transfer from one CTE pathway to another?
  - Are students enrolled in CTE courses without choosing them? ○ Are students encouraged to try different pathways?
  - Can students enter and complete a CTE pathway after 9th grade?
    - Is it possible for students to complete more than one pathway during their 4 years of high school?
    - Do all pathways offer post-graduate work opportunities?
  - What causes students to leave the CTE program altogether?
    - Are they any aspects of the high school experience that make being in a CTE pathway difficult?
    - What trade offs do students make when they choose

	to complete a CTE pathway? CTE Teachers ● What leads to student success in the CTE program? ○ Are students more successful in some pathways than others? If so, why? ● How prepared are students for the CTE pathway? ● How well do you think student expectations of the program match their experience? ● In what ways do students have difficulty with CTE pathways? ● What does student support look like in the CTE program?

Benefits of CTE for students
 	
Agency, competence, and identity development
Post-graduate options and readiness
	All staff
	● What are the benefits to students for participating in the CTE program?
	    ○ What are the immediate, short-term benefits (during HS)?
	      ○ What are the long-term benefits (post-graduate)?
	● How have students grown as a result of their participation in the CTE program?
	
	CTE District Administrators and Building Principals
	● How do you define success of the CTE program?
	    ○ What does success mean for the district? For students? For the community?
	    ○ Is success defined differently for different pathways?
	    ○ Does pathway completion equal success?
	● To what degree, are students in the CTE program achieving the socio-emotional goals that are referenced in the CTE mission statement published on the CISD website?
	● How is the CTE program beneficial to the school overall?
	
	Counselors and Teachers
	● To what degree, are students in the CTE program achieving the socio-emotional goals that are referenced in the CTE mission statement published on the CISD website?
	● In what ways are students in the CTE program benefiting socially and emotionally?
	● What benefits have graduates of the CTE program experienced
	● How else has the CTE program been beneficial to the school?

Closing	● Is there anything else you think we should know that would relate to our study of the factors that shape students' decisions to enroll in, and complete, a CTE pathway or benefits that students receive from the CTE program?

APPENDIX F

Staff Interview Participant Roster and Characteristics

Pseudonym	School
Admin 1	Central Office
Admin 2	Central Office
Admin 3	Central Office
Admin 4	Central Office
Admin 5	Central Office
Admin 6	Central Office
Admin 7	School 1
Admin 8	School 2
Teacher A	School 1
Teacher B	School 1
Teacher C	School 1
Teacher D	School 1
Teacher E	School 1
Teacher F	School 1
Teacher G	School 1
Teacher H	School 1
Teacher I	School 2
Teacher J	School 2
Teacher K	School 2
Teacher L	School 2
Teacher M	School 2
Teacher N	School 2
Teacher O	School 2
Teacher P	School 2
Teacher Q	School 2

Teacher R	School 2
Counselor 1	School 1
Counselor 2	School 1
Counselor 3	School 1
Counselor 4	School 2
Counselor 5	School 2
Counselor 6	School 2

Student Interview Participant Roster and Characteristics

Pseudonym	CTE Participant Category	School	Grade Level
Student A	Concentrators	School 1	Senior
Student B	Concentrators	School 1	Senior
Student C	Concentrators	School 1	Senior
Student D	Concentrators	School 1	Senior
Student E	Concentrators	School 1	Senior
Student F	Concentrators	School 1	Senior
Student G	Explorers	School 1	Senior
Student H	Explorers	School 1	Senior
Student I	Explorers	School 1	Junior
Student J	Explorers	School 1	Senior
Student K	Explorers	School 1	Freshman
Student L	Explorers	School 1	Senior
Student M	Departers	School 1	Junior
Student N	Departers	School 1	Senor
Student O	Departers	School 1	Junior
Student P	Departers	School 1	Junior
Student Q	Departers	School 1	Senior
Student R	Concentrators	School 2	Senior
Student S	Concentrators	School 2	Senior
Student T	Concentrators	School 2	Junior
Student U	Concentrators	School 2	Senior
Student V	Concentrators	School 2	Senior
Student W	Concentrators	School 2	Sophomore

Student X	Explorers	School 2	Junior
Student Y	Explorers	School 2	Senior
Student Z	Explorers	School 2	Junior
Student AA	Explorers	School 2	Senior
Student BB	Explorers	School 2	Junior
Student CC	Explorers	School 2	Junior
Student DD	Explorers	School 2	Junior
Student EE	Concentrators	School 2	Senior
Student FF	Concentrators	School 2	Junior
Student GG	Concentrators	School 2	Junior
Student HH	Concentrators	School 2	Senior
Student II	Concentrators	School 2	Senior
Student JJ	Concentrators	School 2	Senior
Student KK	Concentrators	School 2	Senior
Student LL	Concentrators	School 2	Senior
Student MM	Concentrators	School 2	Senior