INNOVATIVE AND EXEMPLARY VIRTUAL INTERNSHIPS AND JOB SHADOWING PROGRAMS

Introduction

High-quality career and technical education (CTE) programs incorporate employer partnerships, advising sessions, work-based learning opportunities, and other key components to provide industry knowledge and real-world applications.[1] However, the COVID-19 pandemic now requires CTE stakeholders to apply new approaches to career engagement programs, which must maintain the elements shown in the following figure.

Principles of Remote CTE Programs

Quality	Equity	Mentorship	Breadth

Source: Advance CTE[2]

To support districts in understanding innovative options for virtual CTE programming that avoid potential COVID-19 hazards, Hanover Research (Hanover) presents this research brief. This brief describes a range of examples of the following virtual career exploration and development opportunities:

- Career searches and videos;
- Mentorship programs and events;
- Job shadow days; and
- Internships and projects.

To the extent possible, each example includes information on the benefits to students (e.g., experiences, connections), teachers' and the district's role in operating programs, and how programs connect to career paths and curricula.

Key Findings

- **Virtual career programs for CTE students take many forms (e.g., industry tours, mentorship programs, project-based curricula, job shadow videos), and virtual internships appear less often than other options.** Successful examples of virtual internships include those in Porterville Unified School District in the engineering, technology, and performing arts industries. However, other programs present more theoretical career development opportunities, such as the Cybersecurity Texas Virtual Externship and Virtual Enterprises International's course. Alternatively, pre-recorded career exploration videos, which include interviews with professionals and tours of worksites, are more prevalent and include a wider variety of careers and industries.

- **Virtual internships and mentorship programs provide CTE students with more opportunities to build connections with professionals in specific industries.** For example, using iCouldBe through the Virtual Mentorship Portal allows students to work one-on-one with a mentor and discuss topics such as careers, academics, postsecondary transitions, and networking. Alternatively, DreamWalkers also supports interactions with career experts in a curriculum-aligned field, and students can ask professionals direct questions. However, DreamWalkers and similar programs match professionals and classrooms for one-time talks or a short series of talks, rather than ongoing interactions. These one-time interactions may occur in virtual mentorship programs, events, and job shadow days.

- **District and school leaders often facilitate virtual program implementation through registration and funding, and teachers often support implementation through course alignment and ongoing facilitation.** Although many career videos and industry tours, such as those produced by Nebraska Career Clusters, provide publicly available resources, virtual courses and connections with industry professionals often require program registrations and private subscriptions (e.g., Nepris, VirtualJobShadow.com). Subsequently, teachers must ensure that programs align with course content if using these programs as course supplements. For example, teachers using DreamWalkers and Open P-TECH must request speakers and assign supplemental projects that match curriculum materials and student interests. Furthermore, both teachers and leaders support program success by monitoring student data within programs that track involvement (e.g., VirtualJobShadow.com, Mavin Global).

- **Virtual career videos and industry tours align with a large variety of career trajectories and student interests, though more specific opportunities, such as internships and mentorships, present a narrower pool of career and industry insights.** For example, the Nebraska Career Clusters industry tours include videos and discussion guides for 18 different industries, and PBS LearningMedia lists dozens of career videos on STEM and other fields. However, as programs become more involved and provide more direct interaction between students and professionals (e.g., speakers, internships), the number of associated industries becomes smaller. For example, virtual internships

through Porterville Unified School District included jobs in the engineering, technology, and performing arts industries. Additionally, San Antonio Independent School District's partnership with Experience America only supports one externship in the cybersecurity field.

- **The following table summarizes the innovative programs and program elements presented in this report.** The synchronous (sync.) activities column indicates whether the program includes activities that teachers or mentors may facilitate during synchronous meetings (e.g., virtual class discussions, conversations). The credentials column indicates whether students earn demonstrable career credentials or skills in the program. Lastly, the administrator (admin.) involvement column indicates whether teachers, school leaders, or district leaders must maintain partnerships, create accounts, or apply funding to implement or sustain the program. For programs that may or may not require synchronous activities or administrator involvement, depending on how teachers use them, the table states, "Yes/No."

Virtual Program Overview

PROGRAM	SYNC. ACTIVITIES	CREDENTIALS	ADMIN. INVOLVEMENT
Career Searches and Videos			
Mavin Group App	No	No	Yes
Nebraska Career Clusters	Yes	No	No
PBS LearningMedia	Yes/No	No	No
Discovery Education	Yes/No	No	Yes/No
Mentorship Programs			
Nepris	Yes	No	Yes
VMP	No	No	Yes
DreamWalkers	Yes	No	Yes
Job Shadow Days			
INSPIRE Sheboygan County	Yes	No	Yes
VirtualJob Shadow.com	No	No	Yes
Internships			
Virtual Enterprises International	No	No	Yes
PUSD Pathways	Yes	No	Yes
Cybersecurity Texas Virtual Externship	Yes	No	Yes
Career Exploration, Networks, and Mentorships	Yes	No	Yes
Open P-TECH	Yes/No	Yes	Yes

Source: Multiple sources cited throughout this report

Career Exploration

In this section, Hanover discusses innovative career awareness tools and mentorship opportunities that take place in a virtual setting and support students in learning about potential careers and industries. Each subsection provides a brief overview of the virtual program types before presenting innovative examples.

> In addition to the following virtual career exploration opportunities, the following link provides activities and resources curated by Northern Illinois University.[3]
>
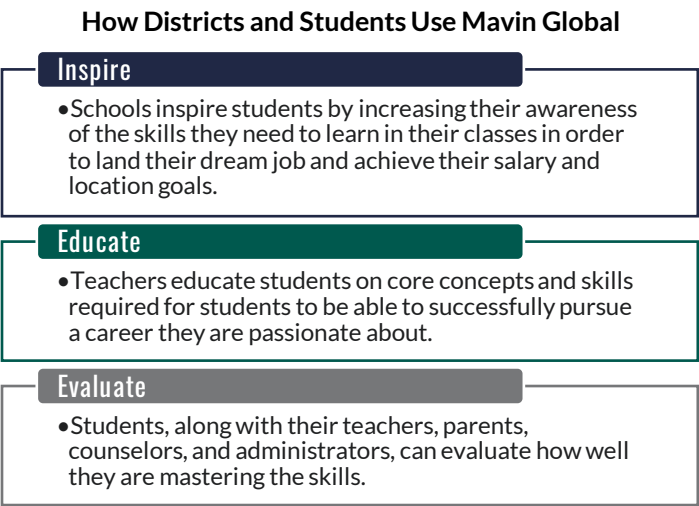> **Virtual Career Exploration: Resources, Models, and Activities**

Virtual Career Searches and Videos

Career awareness opportunities—such as virtual career tours and online exploration applications—support remote CTE experiences by presenting information on numerous potential career paths.[4] These opportunities, which students may access through district initiatives and publicly accessible websites, allow students to explore careers in all Career Clusters virtually and without extensive district planning.[5] Many of the following career exploration programs enable students to filter careers by industry or topic, so students can easily access content that is relevant to their potential career pathways or a CTE course curriculum.

🔍 For example, Northview High School, located in Grand Rapids, Michigan, recently implemented **a career exploration application that allows students to search through careers and industries and deepen their knowledge of a field, associated careers, education requirements, and other job components**. Following research on a career, students may answer multiple-choice questions to check their understanding, write reflections, and share what they learn with family members. Furthermore, the application, produced by Mavin Global, compiles students' multiple-choice quiz results into a database, which school leaders and counselors use to tailor experiences and curricula.[6]

In using this application—which stems from a large district career exploration initiative—Northview High School and district leaders are responsible for forming and maintaining a partnership with local employers, employment agencies, and Mavin Global, which maintains a network of employers across Michigan. Furthermore, the district must ensure teachers receive training on how to use the application, which another Michigan district and the Michigan Association of Secondary School Principals provide. Furthermore, district and school leaders track and incorporate student data that result from the application.[7]

As districts and schools take on these roles, the following figure presents how schools and students use the Mavin Global program.[8]

How Districts and Students Use Mavin Global

Inspire
- Schools inspire students by increasing their awareness of the skills they need to learn in their classes in order to land their dream job and achieve their salary and location goals.

Educate
- Teachers educate students on core concepts and skills required for students to be able to successfully pursue a career they are passionate about.

Evaluate
- Students, along with their teachers, parents, counselors, and administrators, can evaluate how well they are mastering the skills.

Source: Mavin Global[9]

Additionally, the application contains local and regional information on a variety of industries and careers, which allows **students to discover careers they do and do not want to pursue in their region**. By exploring careers in a virtual yet interactive way (i.e., on computers and smartphones), students gain insight into potential careers and industries. Notably, Mavin Global offers specific supports for the following industries: [10]

- Agriculture;
- Health Care;
- Manufacturing; and
- Energy.

🔍 **Conversely, resources from Nebraska Career Clusters provide virtual industry tours, which allow students to explore industries through videos of the workplace and taped interviews with professionals.**[11] These tours show students the industry components in the following figure, as told by employees and business representatives.

Industry Tour Insights

☑️	Work Requirements
🎓	Education Levels
🐷	Salaries
📈	Job Prospects
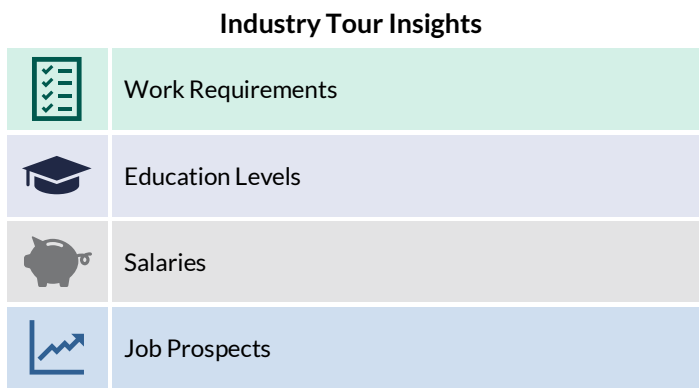
Source: Nebraska Career Clusters[12]

To facilitate student learning and engagement during these tours, Nebraska Career Clusters provides 18 free, web-based discussion and activity guides.[13] **These guides support**

teachers leading conversations and assignments, and engage students learning about industries connected to their coursework and potential career paths. The following link presents one example of these discussion guides that adapt well into virtual learning and may function as an example for similar industries in Missouri.

Industry Tours Discussion Guide Example

Science, Technology, Engineering, and Mathematics

Source: Nebraska Career Clusters[14]

🔍 Similarly, virtual field trips, such as those produced by **Discovery Education**, **present potential careers for CTE students and students in general**.[15] Although Discovery Education's videos include a combination of career and academic content, teachers or students may use the website's filter to search specifically for those with a career exploration focus.[16] The following figure contains the subject areas that CTE students may find most relevant.

Discovery Education Video Subject Areas

Careers and College Readiness

Agriculture

Financial Literacy/Economics

Science, STEM, Exploration

Tech and Manufacturing

Source: Discovery Education[17]

Although **certain videos require teachers or school leaders to create a Discovery Education account to access content**, others provide free videos and discussion guides. These discussion guides, like those provided through Nebraska Career Clusters, provide teachers with activities for virtual, synchronous class conversations as well as independent remote assignments.[18] The following figure presents an example of a video and discussion guide that may be appropriate for STEM-focused CTE students or curricula.

Artificial Intelligence (AI) and Automated Vehicles Video and Discussion Guide

AI and Automated Vehicles Video

AI and Automated Vehicles Discussion Guide

Source: Discovery Education[19]

🔍 **PBS LearningMedia** also provides free career exploration videos, through which students learn about a career and its responsibilities from voiceovers and industry professionals.[20] Many of the videos focus on science, technology, engineering, and mathematics (STEM) careers, though students can also explore other careers (e.g., accountant, cosmetologist, speech therapist).[21]

These videos, organized in groups, or collections, indicate the target audience, and most are designed for middle and high school students. The following figure presents six collections associated with STEM careers. Although three of these collections connect to popular careers in specific locations, students may still see such careers and part of their career path, and other collections provide more general resources.

PBS LearningMedia STEM Career Exploration Videos

COLLECTION	DESCRIPTION
Career Connections	Young professionals tell us about their jobs and take us behind the scenes to show us what they do every day. Learn about Ohio's in-demand jobs, and what it takes to get there. Career Connections is a powerful career resource for any student!
Careers in Demand	Careers in Demand is ideal for high school students trying to determine which career pathway is right for them. The collection provides a snapshot of what a career in one of Kentucky's high-demand industries might look like, including education and experi-ence needed to get these jobs, salary ranges, work environment, and the projected number of job openings over a five-year period.
Career Spotlight	Career Spotlight includes videos focusing on science careers in biotechnology and renewable energy.
STEAM Careers	Each episode of Fast Forward highlights several careers in STEAM, from engineers at Coca-Cola to medical professionals at Augusta University to even costume and set designers on The Walking Dead.
STEM Career Labs	Explore! Watch! And Learn! Through this collection of videos, hear from STEM professionals about their educational pathway, what it is they love about their jobs, and how they really do use that math and science they learned in high school. Start exploring now!

Source: PBS LearningMedia[22]

Teachers may access these videos for free on the PBS LearningMedia website, and certain videos include links to discussion guides or activities below the video. These discussion guides support virtual synchronous class conversations, while activity sheets may engage students when working independently.[23] The following figure contains an example of a video and a student activity.
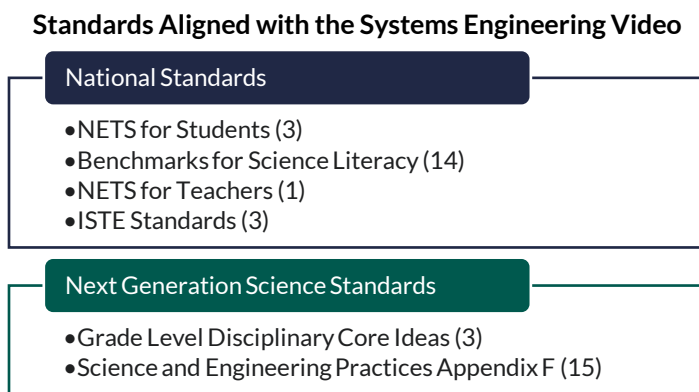
Systems Engineering Video and Activity

Systems Engineering Career Exploration Video

Systems Engineering Career Exploration Activity

Source: PBS LearningMedia[24]

Additionally, these videos note the national academic standards with which each video aligns, as well as the Massachusetts academic standards, if teachers choose to login to PBS LearningMedia as a member. For example, the

video on systems engineering aligns with 39 national standards for teachers and students. The following figure contains the names and number of these standards, which teachers may use to align with CTE courses or curricula.[25]

Standards Aligned with the Systems Engineering Video

National Standards
- NETS for Students (3)
- Benchmarks for Science Literacy (14)
- NETS for Teachers (1)
- ISTE Standards (3)

Next Generation Science Standards
- Grade Level Disciplinary Core Ideas (3)
- Science and Engineering Practices Appendix F (15)

Source: PBS LearningMedia[26]

Virtual Mentorship Programs and Events

According to Advance CTE, "Building relationships and networking is one of the most valuable experiences of any work-based learning opportunity."[27] Networking remains possible in virtual settings, as shown by the innovative mentorship and connection programs described in this subsection. Programs include district-based and third-party programs and enable students to explore potential careers and meet industry professionals before further pursuing similar coursework or career paths.

🔍 **One third-party online platform, Nepris, supports career exploration by connecting teachers with industry professionals in positions that align with course curricula or student interests and facilitating live industry conversations.**[28] The following figure presents how teachers, professionals, students, and other stakeholders use Nepris to support students.

How Education Stakeholders Use Nepris

STAKEHOLDER	USES
Teachers	▪ Join scheduled virtual chats with professionals ▪ Request a guest speaker for your classroom ▪ Browse and view authentic industry videos ▪ Help your students research and compare careers
Students	▪ Search, explore and compare careers ▪ Dive deeper into careers of interest ▪ Get guidance directly from industry professionals

STAKEHOLDER	USES
Professionals	▪ Browse and accept relevant virtual volunteer opportunities ▪ Offer a virtual chat on a topic of your choice to reach more learners ▪ Answer career questions from students ▪ Build your professional profile through volunteering
Intermediaries	▪ Create a branded platform for your region ▪ Curate, Connect and Manage employer engagement ▪ Expose learners and job seekers to local careers ▪ Track and Report community engagement and impact

Source: Nepris[29]

Through Nepris, professionals serve as resources for industry information, mentors during course projects, and critics during student presentations.[30] Although Nepris connections may not provide extended, one-on-one mentorship bonds, virtual sessions enable students to explore potential career paths, understand how course material aligns with real-world applications, and directly ask questions to industry professionals. Furthermore, the Nepris platform records live sessions, so students may return to a previous career chat and watch a session they missed.[31]

The following figure links to Nepris webpages sponsored by state and city organizations. These webpages exemplify the industry chats and mentors that inform and engage with students with STEM and other career interests.[32]

Upcoming Nepris Industry Chats

Kansas City, MO and Kansas City, KS Region

Texas

Washington, D.C.

Source: Nepris[33]

Additionally, teachers, school leaders, and district leaders must facilitate Nepris implementation by forming a partnership with Nepris, selecting professionals to serve as speakers and mentors, and funding the program. Teachers and leaders are also responsible for learning how to use the platform and attending customer support webinars or scheduling training sessions, if necessary. Furthermore, teachers must initiate partnerships with curriculum- or career-specific professionals.[34] Through the Nepris platform, teachers do not select individuals professionally but engage the following process:[35]

"After you register and sign in, you will see an option to Create Request. This will take you to an online form to describe your class and

parameters for the interaction with an industry expert. You also have the option of searching for an existing session request that you can copy and make your own. The session requests in the system are as varied as the classroom teachers and industry experts participating in the Nepris program."

The Virtual Mentoring Portal (VMP) serves as another third-party mentorship resource and combines two mentorship programs onto one online platform.[36] **This platform and its two programs—MENTOR and iCouldBe—support and monitor student-mentor connections through structured (i.e., curriculum-based) and unstructured (i.e., student and mentor-driven) formats.**[37] iCouldBe, specifically, supports career-focused mentorships as students choose their mentor based on career interests.[38] During virtual meetings, mentors and students work on "quests," which support the following development areas:[39]

- Social-emotional development;
- Self-efficacy;
- Self-direction;
- Curiosity;
- Problem-solving; and
- College and career aspirational development.

To develop these areas, students and mentors discuss the academic- and career-based challenges and solutions shown in the following figure.

Mentorship Program Discussion Topics

STUDENT THEMES	MENTOR FEEDBACK
• Academic success • Preparing for graduation • Gaining work experience • Preparing for future education and networking	• Define personal challenges or goals • Determine potential solutions and strategies • Identify networks of people who can help and how they can help • Engage people in their network in the solution

Source: iCouldBe[40]

Additionally, teachers and leaders must facilitate program implementation through the following actions:[41]

- Initiating the partnership with iCouldBe or MENTOR;
- Ensuring teachers receive training to learn how to monitor student engagement and how to teach students about the program; and
- Monitoring student emails with mentors.

Although VMP does not currently charge organizations for using their services—to support mentorships during COVID-19—access to VMP typically requires payments.[42]

DreamWalkers, a third-party virtual mentorship platform, provides Grade 4-12 students with career connections and exploration opportunities.[43] The program centers on 45-minute conversations, or "flashchats," with professionals who work in a field connected to a current course lesson.[44] The following figure contains ways in which flashchats benefit career exploration.

Benefits of Flashchats

🔗	Tie class to real-world issues
	Increase subject matter interest
👁	Encourage students to build their own personal vision
	Build strong critical and comprehensive thinking skills
	Expose students to new cultures and professional role models beyond and within their immediate surroundings
	Enhance public speaking skills and confidence

Source: DreamWalkers[45]

Although teachers from any school or community may apply for the program, DreamWalkers prioritizes serving classrooms in low-income areas and offers services for free if 50 percent or more of students are entitled to free and reduced-price lunch.[46] The program enables students to explore a variety of careers and industries that may operate within or outside their communities, such as the notable employers contained in the following figure.

Notable Employers of DreamWalkers Mentors

PRIVATE	PUBLIC
• YouTube • PwC • L'Oréal • Toyota	• U.S. Department of State • U.S. Institute of Peace • White House Historical Association

Source: DreamWalkers[47]

To provide flashchats, teachers and district leaders must apply for program participation. Subsequently, teachers and leaders must ensure that students have devices and internet access to listen and contribute questions to flashchats.[48] Furthermore, teachers must align mentors and their flashchats or series of flashchats with a curriculum. Teachers may also work with mentors to ensure that conversations connect to a particular topic.[49]

Career Development

In this section, Hanover discusses innovative job shadow, internship, and project-based opportunities that take place in a virtual setting and support students in learning about careers and industries.

> In addition to the following virtual career development opportunities, the following link provides activities and resources curated by Northern Illinois University.[50]
>
> **Virtual Career Development Experiences (CESs): Resources, Models, and Activities**

Virtual Job Shadow Days

Virtual job shadowing presents a contact-free alternative to in-person workplace visits. Through these opportunities, students may learn about a specific industry or employer in-depth, and the virtual format eliminates potential barriers such as transportation.[51] Additionally, virtual job shadows have varying amounts of district involvement as programs may or may not require funding and memberships.[52]

🔍 INSPIRE Sheboygan County, a nonprofit organization based in Wisconsin, provides virtual job shadows and connects students with local employers.[53] Through these web-based experiences, students deepen their understanding of a company or organization during a two- to four-hour virtual site visit.[54] **These experiences allow students to connect course and real-world applications, provide an alternative to other instructional activities, support academic success, and enable students to develop career interests.**[55] Specifically, industry professionals share the insights shown in the following figure.

INSPIRE Sheboygan County Job Shadowing Insights

📋	The professional's career path and education path
🤝	The company's products or services
👍	The reasons why the professional likes working at the company
🐷	The benefits of being employed by the company (e.g., educational reimbursement)
🔀	The student's next steps in career development

Source: INSPIRE Sheboygan County[56]

Additionally, students shadow and connect with industry professionals in a variety of fields, which, in 2019, included the industries in the following figure.[57] A complete list of INSPIRE Sheboygan County employer partners is available on the organization's website, here.[58]

INSPIRE Sheboygan County Industries 2019

Manufacturing
Engineering
Automotive
Healthcare
Business
Finance

Source: INSPIRE Sheboygan County[59]

To support involvement in INSPIRE Sheboygan County job shadows, teachers may request a job shadow day, or another activity offered through the organization (e.g., externship, guest speaker, mock interview), through the Educator Request Form.[60] However, students may also request and register for activities through the Student Request Form.[61] Additional teacher responsibilities include monitoring student involvement and progress in career development and supporting student use of the INSPIRE Sheboygan County resources.[62]

🔍 While INSPIRE Sheboygan County matches local and regional employers and districts, **VirtualJobShadow.com offers nationwide career development opportunities through "over 1,000 professionally-produced job shadowing and career advice videos."**[63] VirtualJobShadow.com creates these pre-recorded videos to demonstrate the roles and responsibilities of specific careers and the experience needed to pursue those careers. Although the product website does not appear to list the industries or careers that students may learn about, a product overview states that the videos span "across the spectrum of Career Clusters."[64]

To support student use of VirtualJobShadow.com, school or district leaders purchase a license with the company, and teachers or leaders monitor student engagement and data through the program's tracking feature. VirtualJobShadow.com collects a variety of data, including district-level and student-level information.[65]

Nashua South High School, in Nashua, New Hampshire, exemplifies how this program supports student career development after implementation in early 2020. First, all Grade 10 students take the VirtualJobShadow.com assessment, and the school's CTE Director and lead CTE Instructor use results to identify students that may benefit from the school's CTE course offerings. These students then connect with a career coordinator and engage in virtual job shadowing and career development. Through the program, students deepen their understanding of careers that they may not explore otherwise, which the school's lead CTE Instructor believes is key to career development. For example, this instructor finds that "students sometimes have the preconceived notion that manufacturing is all tough labor, and don't realize the impact technology's had to

modernize the industry. They don't see the amount of money they could be making, especially because there's a shortage of skilled labor."[66]

VirtualJobShadow.com provides additional examples of how schools use the program for job shadowing days and career development on its website, which is accessible through the following link.

Examples of VirtualJobShadow.com Implementation

> **VirtualJobShadow.com Success Stories**

Source: VirtualJobShadow.com[67]

Virtual Internships and Projects

Virtual internships and projects provide students with engaging online work or activities that connect to live business operations or mimic real-world applications. These virtual opportunities allow students to develop skills that apply to potential careers and may allow students to interact directly with employers, though not in every program. Additionally, teacher and district participation in implementing and maintaining these virtual programs comprises a key aspect of these opportunities as they often require partnerships or registrations.

Virtual Enterprises International (VE), **a nonprofit company, offers an online business and marketing program with a curriculum to develop students' finance, marketing, and information technology skills.**[68] In a traditional classroom setting, the program aims to transform classrooms into office settings in which student groups collaborate on department-based operations.[69] However, due to COVID-19, VE now offers two virtual career development offerings described in the following figure.

VE Online Career Development Offerings

TECH APPS FOR HANDS-ONLINE LEARNING	RESOURCE GUIDE FOR REMOTE ONLINE LEARNING
This course was adapted from VE's *Technology Applications for Business and the Entrepreneur*. Available for either middle school or high school, it is designed to provide hands-on, relevant learning experiences to all students in academic or CTE courses and includes orientation resources to get started.	Based on the VE model of career exploration and career development courses, this resource guide provides schools with online learning activities that will help students and educators develop lessons applying to multiple subject areas.

Source: Virtual Enterprises International[70]

These offerings enable students to continue developing career-ready skills even in a virtual learning setting. For example, in the course Tech Apps for Hands-Online Learning students build the following skills and career capabilities:[71]

- Technology;
- Research;
- Communications;
- Problem-solving; and
- Critical thinking.

The course curriculum aligns with the Career Readiness Framework, a framework designed by VE and Deloitte, and the Common Career Technical Core Standards.[72] However, the course appears to lose the synchronous collaboration component that the in-person course provides, as the course guide does not indicate simultaneous student interactions.[73] However, VE's Resource Guide for Remote Online Learning contains a section on applying video conferencing to virtual learning.[74]

To support the VE online course, district leaders must register with VE and purchase access to the curriculum. Furthermore, teachers must "become consultants" while implementing the curriculum and support student development throughout the course.[75]

Porterville Unified School District (PUSD) transformed its Pathways Program to a virtual internship program in March 2020.[76] According to one district article, **PUSD partnered directly with Nepris to create two-and-a-half-week virtual internships at companies and organizations throughout the United States.** Although neither PUSD nor Nepris had developed this type of program before, results demonstrate success according to the positive student and employer feedback. Furthermore, the district plans to continue the virtual internships and its partnership with Nepris in Fall 2020.[77]
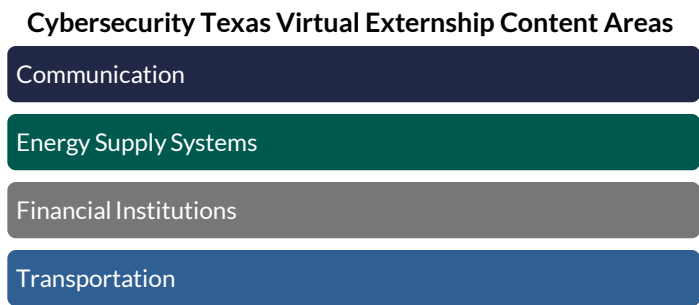
During the program, **students developed career skills and worked for companies in the engineering, multimedia and technology, and performing arts industries.** Within these industries, students worked directly with industry experts (e.g., a CEO, a choreographer, an engineering director) to build relationships and learn about current responsibilities and challenges associated with specific roles.[78] Examples of industry-specific insights appear in the following figure.

Industry Insights from Virtual Internships

ENGINEERING	MULTIMEDIA AND TECHNOLOGY	PERFORMING ARTS
- Professionals' experiences with the industry - Using creative approaches to solve current obstacles	- How to create podcasts and podcast promotion materials - Components of interviewing people with COVID-19 safety protocols	- The number of people who support a Broadway production - Behind-the-scenes work

Source: Porterville Unified School District[79]

To support these virtual internships, PUSD leaders manage the partnership with Nepris to gain access to the company's network of employers and networking services. Additionally, standard Nepris services require district payments, and although not stated in the PUSD virtual internship article, this program likely requires district funding.[80]

🔍 Similarly, San Antonio Independent School District (SAISD) transitioned to virtual internships and externships following the rise of COVID-19, which included the Cybersecurity Texas Virtual Externship.[81] Through this opportunity, **"students engaged in hands-on projects that gave them a comprehensive understanding of the cutting-edge cybersecurity industry."[82]** This five-day virtual externship connects to a variety of national security aspects, as shown in the following figure, which align with the district's Pathways in Technology (P-TECH) program and CTE Programs of Study.[83]

Cybersecurity Texas Virtual Externship Content Areas

Communication

Energy Supply Systems

Financial Institutions

Transportation

Source: San Antonio Independent School District[84]

Additionally, students hear presentations from cybersecurity professionals each day before engaging in a challenge. Professionals from the Federal Bureau of Investigation, National Initiative Cybersecurity Education, National Security Agency, and other organizations teach students industry practices and answer questions. Following presentations, students engage in interactive games and activities that support skill development and collaboration.[85]
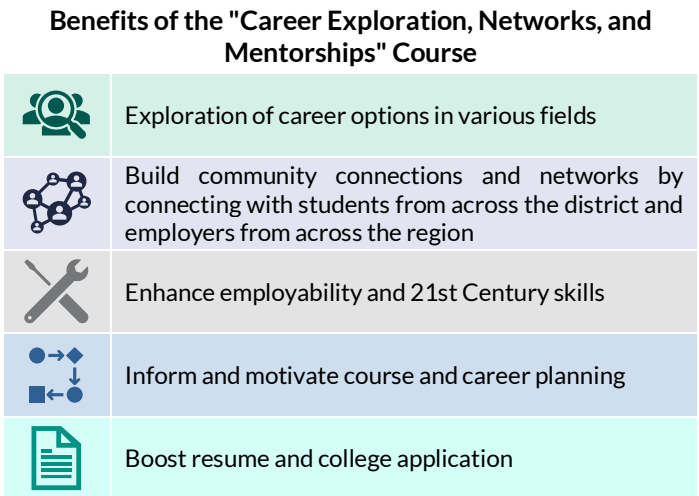
Support and responsibility for this experience involve district, regional, state, and company partnerships. The program itself stems from a partnership between the company Experience America and state Education Service Center 20. Experience America then has partnerships with individual organizations to allow the program to have guest speakers each day.[86] Furthermore, **SAISD and the Texas Education Association now have a partnership that allows CTE students to receive course credit for this and other internship or externship programs as part of the course Student to Industry Connection.[87]** This partnership also impacts all Texas districts. Now, any Texas district can offer course credit to CTE students that complete summer internship programs.[88]

🔍 Everett Public Schools' course "Career Exploration, Networks, and Mentorships," offers a virtual replacement for the in-person Everett Career Link internship program and **enables high school students to**

grow their network and explore careers during the summer.[89] Typically, Everett Career Link, a 90-hour internship program, allows students to earn credit for working for a local employer.[90] However, due to COVID-19, Everett Public Schools adapted the program to an online course facilitated by Everett Public Schools teachers with support from local employers.[91] Program details include:[92]
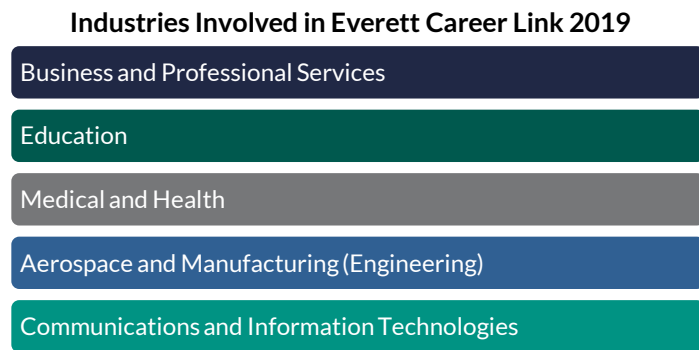
- Runs from June 29th–August 14th (i.e., six weeks);
- Awards students with 0.5 CTE credits;
- Focuses on regional in-demand careers with global career awareness; and
- Includes activities such as virtual worksite tours, employer presentations, panel discussions, and real-world projects connected to regional career opportunities.

As noted above, this program earns students CTE course credit while detailing potential careers and introducing industry professionals. Other student benefits include the advantages shown in the following figure.

Benefits of the "Career Exploration, Networks, and Mentorships" Course

👥	Exploration of career options in various fields
🔗	Build community connections and networks by connecting with students from across the district and employers from across the region
🛠	Enhance employability and 21st Century skills
●→◆	Inform and motivate course and career planning
📄	Boost resume and college application

Source: Everett Public Schools[93]

As of a June 2020 district publication, 35 employers demonstrate an interest in participating in the 2020 course.[94] This count demonstrates an increase from the 15 that participated in the 2019 program, who align with the Everett Public Schools career pathways shown in the following figure.[95]
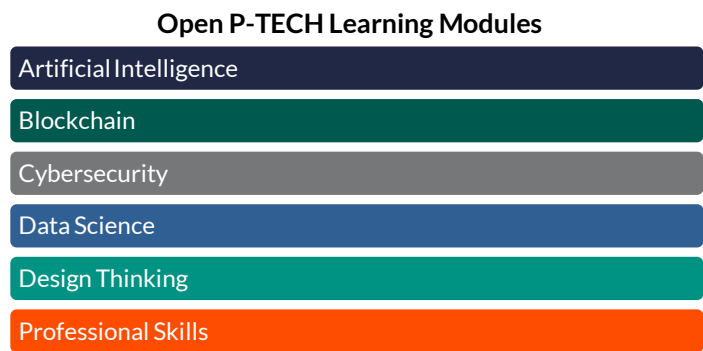
Industries Involved in Everett Career Link 2019

Business and Professional Services

Education

Medical and Health

Aerospace and Manufacturing (Engineering)

Communications and Information Technologies

Source: Everett Public Schools[96]

The industries of participating employers indicate the fields that match Everett Public Schools students' career interests and trajectories. This alignment occurs because district staff members connect students with employers of interest, or in 2020, facilitating employer involvement in the course.[97] School and district staff also support employer partnerships in the following ways:[98]

- Presenting the course to potential students;
- Reviewing student paperwork and registrations;
- Partnering and maintaining connections with the City of Everett and employers;
- Organizing employer compliance and liability paperwork;
- Delivering training sessions to employers;
- Facilitating the course; and
- Providing student and employer support throughout the course, as needed.

Open P-TECH, an online learning platform provided by IBM, offers another career development option for students interested in technology-focused careers.[99] Open P-TECH "partners with schools, community colleges, and industries to provide skills-based education and workplace opportunities for high school students."[100] Although students do not engage with employers directly, they learn skills necessary to work settings, and teachers may assign project-based work that aligns with the Open P-TECH curriculum.[101] The Open P-TECH curriculum modules include those shown in the following figure.

Open P-TECH Learning Modules

Artificial Intelligence

Blockchain

Cybersecurity

Data Science

Design Thinking

Professional Skills

Source: Open P-TECH[102]

Additionally, for each learning area completed, students earn a **digital badge**, which they may include on resumes as credentials. CTE teachers may also use Open P-TECH to introduce career options and serve as the basis for more focused student research, projects, and presentations.[103]

Furthermore, **district and school leaders are responsible for registering for the Open P-TECH portal. Alternatively, teachers monitor student progress using the program's data system and potentially create curriculum-based projects to supplement the six-hour modules**.[104] Once teachers and leaders register with Open P-TECH, they have access to the features shown in the following figure.

Open P-TECH Features for School and District Leaders

FEATURE	DESCRIPTION
Bulk Registration	Organizations can bulk-register all teachers, facilitators, and students who will access the platform through a simple upload feature, or custom URL after creating an ID. This includes the ability to assign students to specific teachers or facilitators to enable easier progress tracking.
Administrative Features	Administrators can give teachers the ability to track student learning completions, create specific learning plans, assign specific learning to their students, and add external content of their choosing to their organization's Open P-TECH content library.
Customized Level of Service	Organizations that meet basic requirements for usage receive individual support from a member of the Open P-TECH team to ensure that all onboarding needs are met. Organizational users also have access to custom enablement materials and ongoing webinars to ensure that Open P-TECH is easy to use and maximize.

Source: Open P-Tech[105]

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