THE IMPACT OF HIGH-QUALITY CTE PROGRAMS ON STUDENTS, SCHOOLS, AND THE COMMUNITY

NON-TRADITIONAL PATHWAYS

to GRADUATION and CAREER SUCCESS
Introduction

The Critical Case for a Renewed Investment in Career and Technical Education

For centuries—from the Gutenberg press to advanced robotics—innovation and technology have been reshaping the workplace. Technology has continuously displaced workers and, at the same time, created new jobs and opportunities requiring different skills. Over the next decade automation, artificial intelligence, and robots will phase out millions of jobs requiring basic skills and at the same time create millions of new jobs. These jobs of the future will require different technical skills focused on critical thinking, technology, creativity, empathy, and have fewer barriers to entry than jobs requiring a bachelor’s degree (McKinsey Global Institute 2021).

In this environment, today’s K-12 students will face a rapidly evolving workplace that requires different skills, level of education, and experience. There is a deep body of research demonstrating that CTE programs can increase students’ interest in school, keep them engaged beyond high school, improve their job and economic prospects, and prepare them for the future job market.
CTE Facts & Research

2% Increase in Wages per CTE Course
There is a significant link between taking CTE courses and higher wages, especially among students who took upper-level CTE courses (Kreisman & Stange 2017).

75% Pursue Post-Secondary Studies
75% of high school students who take CTE coursework also pursue post-secondary studies shortly after graduation (ACTE 2017).

CTE Credits Increase College Attendance
Students who take three or more credits as a CTE concentrator are more likely to go to college than equivalent students who did not (Giani 2019).

CTE Increases Student Engagement in School
CTE is associated with higher levels of student engagement in school (Cheng & Hitt, 2018).

CTE Students Have Higher Grades
A 2010 literature review found students enrolled in CTE courses had higher grades than student not taking CTE courses (Stern et al. 2010).

Up 7-10 Points
Participation in a high-quality CTE program boosts the probability of on-time high school graduation by 7 to 10 percentage points (Dougherty, S. 2018).

94% Graduation rate for CTE Concentrators
The average high school graduation rate for CTE concentrators is 94% compared to the national rate of 85% (NCES 2018).

CTE Concentrators Less Likely to Dropout
Students taking CTE concentrators are associated with reduced dropout rates (Gottfried & Plasman, 2017).
There are numerous reasons why a so-called “traditional education” doesn’t meet the needs of all students. For some students it’s the social pressures of school, for some it’s the constraints of the daily classroom schedule, and for others it’s a rigid standardized pace of learning. Requiring all students to work on the same task at the same time does not allow learners to flex what they already know while diving deeper into what they do not know. Whatever the reason, there are over 2 million high school students in the U.S. who have dropped out of our educational system, and the percentage is highest among Black, Hispanic, and Native American students. Despite these alarming statistics, there has been consistent incremental progress in improving the high school dropout and graduation rates in the U.S. over the past decade. In 2006 there were over 3.6 million youth labeled status dropout in the U.S. and by 2017 that number was just over 2 million (NCES, 2019).

One school that is making dramatic progress in helping their students beat the odds and succeed is Armadillo Technical Institute (ATI). Located in the Rogue Valley in southern Oregon, ATI is a small public charter high school that provides an alternative to a traditional high school education experience for a diverse population of students. “Our mandate is to re-engage students who are at risk of dropping out or have already dropped out of school” says Summer Brandon, Executive Director of ATI. “That’s our target demographic. We have a huge homeless rate and significant IEP and 504 rate.”

ATI is helping students succeed through an innovative model that includes proficiency-based learning for core subjects, interest-based work experience through community partners, and a full suite of embedded student support services offered on-campus. Since implementing this model in 2017, ATI has improved its on-time graduation rate by over 57 percentage points.

Armadillo Technical Institute serves a diverse population of student with a number of education and life challenges:

- Schoolwide free/reduced meals
- 95% of students designated FRM
- 26% homeless/inadequately housed
- 22.6% students have IEPs
- 8% of students designated 504

### 4-Year On-Time Cohort Graduation Rate

<table>
<thead>
<tr>
<th>Year</th>
<th>Graduation Rate</th>
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<tbody>
<tr>
<td>2017-18</td>
<td>20%</td>
</tr>
<tr>
<td>2018-19</td>
<td>40%</td>
</tr>
<tr>
<td>2019-20</td>
<td>60%</td>
</tr>
<tr>
<td>2020-21</td>
<td>80%</td>
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Armadillo Technical Institute and Edmentum began their partnership in 2017 with ATI using Edmentum’s catalog of online core and CTE courses to support the implementation of their competency-based learning model and their CTE work-based learning program. ATI leverages a blended model where most learning is done on-campus, but with a high degree of flexibility to meet the individual needs of all their learners. While there are three basic instructional models at ATI, in reality all learning is personalized to meet the needs of each individual student. The academic year is structured in 9-week quarters with most students enrolling in a full 6-period schedule of courses each quarter. Within this structure, the weekly schedule can look very different depending on each student’s unique needs. While most students attend classes onsite 4 days per week, some students requiring more flexibility attend a “transition schedule” working onsite two days per week and remote the rest of the week. There are also some students who just cannot be on campus for safety or other reasons, so they use Edmentum’s virtual courses and work 100% remotely with their instructors.

**COMPETENCY-BASED LEARNING**

ATI leverages the flexibility of Edmentum courses to accelerate learning within a competency-based model. Students begin each class by taking a course exam to determine what they already know and what they need to learn. Then each course is customized to exempt students out of what they’ve already mastered and target what they need to learn. “You don’t need to sit through the seat time” says Brandon. Seat time is a construct that was needed in the past when we didn’t have ways to understand and measure at scale what students already know. Brandon adds, “There are all these barriers that students face to earning credits in high school— especially our population of students. And having Edmentum cuts right through that in so many ways. Because kids can have a couple courses on their case load all the time and pick it up and work on it whenever they have a little time— it’s remarkable!”

ATI staff knows that to graduate on time you need to earn 6 credits per year or 1.5 credits per quarter, but their goal is that every student earns 1.75 credits per term so that they are actually gaining ground toward graduation. Brandon comments, “We had kids go from earning an average of 4.8 credits in a year to 7.2 credits per year because we brought in Edmentum. Before Edmentum we had about a 20% graduation rate and today our on-time graduation rate is 81%!"
Work-Based Learning Experiences

“Kids are coming to us on average 20 weeks behind on credits. So, we’re credit recovery, drop out recovery, confidence recovery, and proficiency-based learning” says Brandon. “And while students are recovering credits to graduate, they also get work-based experience— and they are getting credit for it. We’ll create custom packages of coursework and work experiences for students based on their individual interests.” Recent research demonstrates that CTE coursework and work-based experience not only increase graduation rates and reduce dropout rates, but also increase students’ overall school engagement (Xing & Gordon 2020).

Brandon is quick to admit ATI does not have a traditional CTE program. They don’t have CTE shop facilities on their campus; they are simply too small. But through a network of community partnerships, they offer their students an amazing set of work-based opportunities. These community partnerships include working with local vocational-technical (Vo-Tech) programs, non-profits, and businesses.

For example, a student who is interested in education as a career can start by taking an Edmentum Child Development CTE course. Then that student can intern at the elementary school across the street or at the local science museum’s education program. ATI uses the child development course as a foundation for the work students do at the elementary school or museum. Students will also take a community-based infant and child cardiopulmonary resuscitation (CPR) class where they earn a certification. So students are earning credit for CTE courses, gaining real on-the-job experience, and earning certifications that will be valuable in their future careers. A lot of ATI students flow right from their internship into a job.

One Student’s Story of Success

This student came to Armadillo Technical Institute to find a place where she felt safe and like she belongs. She is a bright, talented artist. She can also be pretty quirky and benefits from having some latitude over her learning—both in how to work and the speed of her work. ATI helps keep her engaged by encouraging her to work her art into what she’s learning academically. She’s very interested in the maker movement, and through one of ATI’s local partnerships, she took a class with a community maker-space organization where she participated in “The Bus Project”.

The Bus Project involved turning a 40’ long school bus into a tiny-home for a family displaced by the southern Oregon wildfires. She was so successful working on the project, she was hired as a camp assistant over the summer and she continues working for the organization this year as a paid intern and is currently on-track to graduate early.
Another critical component to ATI’s overall success is the embedded services they offer their students. ATI found that their population of students needs more than academics and work-based opportunities—they need their non-academic and basic life needs addressed first if they are to find success. Because their population includes a large number of students with various risk factors, including homelessness, they need a variety of services that include food, clothing, healthcare, mental health, and counseling. At first ATI offered these services through a series of referrals to local community organizations, but they found that even if the services are available three blocks away kids just wouldn’t get there. So ATI moved to an embedded model moving the services on-campus. Now, when kids come to school, they get healthcare, meals, therapy, career counseling, clothing, selfcare, and even laundry services.

Executive Director of ATI, Summer Brandon says,

“Even if a student missed the last 15 days, we’re not going to talk about attendance. We’re going to be really excited that they’re here! We’re going to greet them by name and ask them how they’re doing, and we’re going to hook them up with whatever services they need. They come to school and get the essential services they need, and in the time we have with them we’re going to love ‘em up and provide as much learning and support as we can. That’s how we get that credit-earning and graduation rate.”

“So our model moving forward involves lots of relationship work and providing the embedded essential services students need to be healthy and resilient when they come to school so they feel healthy, safe, and successful. Even if we can’t provide a full formal CTE program of study, we can get kids excited about doing things they’re interested in and customize a variety of experiences that are meaningful to the student. The students who are participating in these work-related experiences are loving it and it does positively impact their engagement, their attendance, and their success. They feel good about what they are doing and they’re proud of themselves.”
References


