EXPANDED PATHWAYS

Youth Apprenticeships Give Students Brighter Futures

AASA
THE SCHOOL SUPERINTENDENTS ASSOCIATION

APPRENTICESHIP BY THE

NUMBERS

$300,000
Additional average career earnings of workers who complete apprenticeship programs

94%
apprentices who retain employment after their program ends

705,000+
New apprentices since January 1, 2017

150,000
Number of businesses that have integrated apprenticeships into their talent development strategy

$70,000
Average salary after apprenticeship completion

97%
Businesses with apprenticeship programs that would recommend apprenticeship to others

1,000
Number of occupations nationwide with apprenticeship opportunities

128%
Growth in the number of apprenticeships since 2009

12,300
Number of new apprenticeship programs created in last 5 years

633,000
Number of apprentices nationwide

252,000
Number of individuals that entered the apprenticeship system in 2019

81,000
Graduates from the apprenticeship system in 2019

25,000
Active registered apprenticeship programs across the nation

12,300
New apprenticeship programs created in last 5 years

319,000
Number of participants that completed an apprenticeship in last 5 years

SOURCE: Registered Apprenticeship National Results Fiscal Year 2019, 10/01/2018 – 9/30/2019; Data and Statistics, Employment and Training Administration, US Dept of Labor, accessed 10/08/2020 www.dol.gov/agencies/eta/apprenticeship/about/statistics

APPRENTICESHIP OVERVIEW

The goal of this AASA youth apprenticeship toolkit is to encourage the creation of school and business partnerships as a viable and expansive pathway to success in school, career and work. This toolkit provides resources for secondary and community college administrators to advocate for and build apprenticeship programs of your own.

Apprenticeships are an underutilized educational and workforce strategy with proven value that, more and more, have been successfully implemented by schools around the country. Currently, middle and high schools focus on preparing students to attend colleges and universities. Yet, for many students, this is not the only path—or even the best path—they can take. A cultural shift is needed for educators, counselors, parents, and students to consider successful models of apprenticeships as a viable and exciting educational option.

AASA staff conducted site visits to each of the areas highlighted in the toolkit to gather information about successful apprenticeship programs. We wanted to see apprentices and apprenticeship programs in action, to hear from stakeholders on why students, parents, school and business leaders valued the experience, and to learn what they gained from it. Each district visit was designed for maximum stakeholder input through conversations with parents and students, one-on-one interviews with business and education leaders, and site visits to school and industry sites.

We also queried other stakeholders, including Career and Technical Education (CTE) coordinators, building administrators and teachers, community college administrators, and superintendents.

AASA staff visited Charlotte, NC; Denver and Cherry Creek, CO; Highline, WA; and the state of Kentucky. We'd like to extend heartfelt thanks to the following districts for their willingness to let us explore the career and technical education programs in their districts: Charlotte-Mecklenburg Schools, NC; Denver Public Schools, CO; Cherry Cheek Public Schools, CO; Highline Public Schools, WA; and Russell County and the state of Kentucky.

This toolkit is the result of five site visits conducted from May 2019 to March 2020 and two summits held in November 2019 (Denver) and January 2020 (Savannah). Sites were selected to spotlight a variety of industries including advanced manufacturing, IT, finance, business, health care, education, and electrical. The selected sites also represented a range of geographies (urban, suburban, and rural), and a variety of administrative frameworks (district initiated, statewide, intermediary, etc.)

The four case studies, seven videos, and other content presented here are designed to give you the tools and resources to start an apprenticeship program in your district. Let *Expanded Pathways* help you get started!

AASA has created these animated videos to help you get started.

Apprenticeships, COVID-19 and Economic Recovery

The COVID-19 (coronavirus) pandemic is the greatest educational and economic disruption the United States has seen for generations. Economic impacts from the pandemic include: the slowing of the manufacturing of essential goods, disruptions in the supply chain of products, losses in national and international business, sudden and massive job loss across all sectors worldwide, and significant impacts in particular sectors including healthcare, tourism, hospitality, and service industries.

Apprenticeships sit at the nexus of education and industry and the challenges faced have impacted the ability of young people to participate in school, the workplace, and apprenticeship programs. Schools and workplaces, along with students and families, have had to shift, adjust, and reconfigure to new ways of doing business.

AASA conducted interviews in September 2020 with four apprenticeship leaders—two superintendents, one state leader, and one intermediary organization—to learn more about apprenticeships in the era of coronavirus and in the future period of economic recovery.

While there are a number of challenges facing the apprenticeship ecosystem, many of the key components continue to function providing benefits to young people and businesses alike. Industries including information technology, financial services, and advanced manufacturing continue to flourish. IT and financial services were quickly able to pivot to remote learning and mentoring while manufacturing's essential services and safety precautions enable the work to continue. Some, though not all, of the hybrid or remote models have allowed the kind of schedule flexibility required for apprenticeships. Service industries including culinary, hospitality, and health services have experienced extreme disruptions which make the taking on of apprentices unlikely and challenging. Overall, apprenticeships in the four sites interviewed held steady in fall 2020 but did not experience the usual year on year growth that was predicted prior to the pandemic.

The current state of apprenticeships remains fairly strong and the future of apprenticeships is definitely bright as all sectors look forward to safer, better, and more prosperous days in the years ahead.

Frequently Asked Questions

What is a youth apprenticeship?

A youth apprenticeship combines on-the-job training (provided by an employer in a business, industry, or related organization considered essential to the economy of a local area, region, or state) with job-related academic instruction in a curriculum aligned with national skills standards for a specific career pathway.

Ideally, youth apprenticeships develop and grow as technologies advance and technical training requirements evolve. In many cases, students begin their youth apprenticeship in their eleventh- or twelfth-grade years, continuing their experience for a duration of three years or longer within the chosen career location. Many youth apprenticeship programs also offer the option of students earning college/university credit for post-secondary coursework supported by the apprenticeship sponsor.

Why is the idea of youth apprenticeships becoming a key priority in education and business today?

A variety of factors are leading to the increasing national focus on the value of youth apprenticeships, including:

A rapidly changing job market requiring entering workers to demonstrate proficiency in a variety of higher-order reasoning and technical skills;

The growing realization that **student loan debt** is increasing dramatically, becoming one of the key debt sectors in the U.S. economy;

The **lack of alignment** between many college majors and current (and future) workplace requirements.

The astounding transformation of the post-industrial workplace is clearly evident when we consider what is on the horizon in the career marketplace. According to LinkedIn's "15 of the Most Promising Jobs in the US in 2019," the following represent high-paying and highly technical career pathways presently and in the near future:

- **Data scientist**
- **Site-reliability engineer**
- **Enterprise account executive**
- **Product designer**
- **Business analytics**
- **Customer success manager**
- **Engagement manager**
- **Solutions architect**
- **Information technology lead**
- **Software development (scrum manager)**
- **Cloud architect**
- **Product marketing manager**
- **Solutions consultant**
- **Project managers**
- **Machine learning engineers**

Twenty-first century education both in the United States and globally is faced with the realization that there needs to be a growing emphasis on alignment between **how students are educated, what and how they learn, and how they are prepared for the world** beyond the classroom (parallel to John Dewey's famous three-part purpose for education, i.e., to prepare students to become life-long learners, ethical citizens, and successful participants in the world of work).

What are the key components of an effective youth apprenticeship?

According to the U.S. Department of Labor, youth apprenticeships may vary, depending upon the location and sponsoring business, corporate, or organizational agency, but all successful apprenticeships provide five essential components:

Active involvement of business, including apprenticeship councils, industry associations, and other partnerships sharing administrative tasks related to maintaining the apprenticeship;

Structured on-the-job training, including support and coaching from experienced mentors on-site;

Classroom-based academic instruction related to the technical and academic competencies required for the job;

Rewards for student acquisition of apprenticeship skills, including wages as students begin work and pay increases as they meet identified performance benchmarks; and

Nationally recognized credentialing that is portable and provides certification that the apprentice is fully qualified for a position in the chosen industry or field.

How do youth apprenticeships differ from other career development programs?

Youth apprentices are **hired** by an employer and receive **a paycheck from their first day of work.** Their wages increase as they progress in the worksite and demonstrate growing knowledge, skills, and technical competencies. Typically, an apprenticeship lasts **multiple years (averaging three years),** beginning usually during students' junior year in high school. Unlike other career preparation experiences (e.g., shadowing, internships), youth apprentices complete their initial training with industry-recognized credentials. In some cases, they may also complete the program with **earned college credits** that may lead to an Associate Degree.

Why are youth apprenticeships becoming a priority in the U.S. workforce?

A variety of factors reinforce the need for expansion of apprenticeship experiences for high school students.

Youth unemployment in the 16-18-year age range is at its highest since the 1950s.

The vastly expanding technological knowledge base (including growing influence of Artificial Intelligence, automation, and reduction of the need for unskilled labor) is evident throughout the United States economy today.

The absence of highly skilled workers capable of succeeding in high-tech positions, with many such positions going unfilled is decried by many industry leaders.

High school students hunger for experience-based and authentic learning experiences. We are also witnessing a growing sense they want work aligned with their personal search for efficacy and meaning.

What career pathways are considered high-priority today?

Although specific locations and regions may experience differing priority areas in their workforce, the U.S. Department of Labor has identified the following high-priority workforce pathways in which there is growing need for highly trained and highly skilled workers:

- **Advanced Manufacturing**
- **Construction**
- **Energy**
- **Finance and Business**
- **Healthcare**
- **Hospitality**
- **Information Technology**
- **Telecommunications**
- **Transportation**

How do students benefit from participation in a youth apprenticeship?

Youth apprentices enjoy multiple benefits from their participation, including enhanced educational opportunities reinforcing their academic skills and knowledge as well as a powerful head start on entering a chosen career pathway.

Apprentices receive hands-on career training, a comprehensive education aligning the academic and professional sides of their development, the potential for a long-term career in a growing career field, and one or more national credentials that are portable for presentation to employers and industries throughout the United States.

For school districts considering youth apprenticeships, how flexible are available models?

U.S. Department of Labor guidelines and policies encourage flexibility and innovation.

They emphasize the need for collaboration within the jurisdiction to ensure that proposed or operating youth apprenticeship programs are aligned with the workforce needs of a city, region, and/or state. That said, apprenticeship program design can be customized to meet the needs of participating businesses, including how, when, and where related instruction is provided to apprentices.

What services does the U.S. Department of Labor provide to support youth apprenticeships?

When schools and businesses register an apprenticeship program with the U.S. Department of Labor, they gain access to the following services:

- **Technical assistance and support;**
- **National industry-recognized credentialing;**
- **High quality and rigorous performance standards aligned with current industry requirements;**
- **Potential tax credits for the sponsoring agency; and**
- **Access to federal resources to support the sustainability and scalability of the apprenticeship program.**

Who are the external partners most frequently involved with school districts in youth apprenticeship programs?

A range of partners are typically associated with youth apprenticeship programs, including: (a) businesses, a consortia of employers, and industry associations; (b) labor and joint labor-management organizations; (c) state and local public workforce systems; (d) two- and four-year colleges that offer Associate and Bachelor's Degrees; (e) community-based organizations; and/or (f) economic development associates.

Where can I find more information about youth apprenticeship programs?

Numerous resources and materials are available on-line, including profiles of state-specific and national youth apprenticeship programs. Here are a few for your exploration (accessible via www.workforcegps.org):

WorkforceGPS: Navigate to Success
www.workforcegps.org

Framework on Registered Apprenticeship for High School Students (TEN 31-16)
www.wdr.doleta.gov

WIOA and Youth Apprenticeship Desk Aid (Using WIOA Adult, Dislocated, and Youth Funds to Support Apprenticeship)
www.DOL.gov

State and Local Apprenticeship Programs: Wisconsin Youth Apprenticeship Program
www.DOL.gov

Apprenticeship Carolina Youth Apprenticeship (South Carolina)
www.apprenticeshipcarolina.com

Apprenticeship Maryland
www.dllr.state.md.us

Georgia Youth Apprenticeship Program
www.gadoe.org

CareerWise Colorado
www.careerwisecolorado.org

School to Work Youth Apprenticeship Program (Rochester, NY)
www.fingerlakesyouthapprenticeship.org

Minnesota's Youth Apprenticeship Program
www.MN.gov

Charleston Regional Youth Apprenticeship Program
www.car_youth_apprenticeship

Kentucky TRACK Program
www.Kentucky.gov

Making Apprenticeships Work for Opportunity Youth (Jobs for the Future)
www.jff.org

Youth Apprenticeship Tools:

Youth Apprenticeship: Action Planning Guide for Local Communities (Wisconsin)
www.dwd.wisconsin.gov

Youth Pre-Apprenticeship Recruiting, Screening and Testing (North Carolina)
www.ncjustice.org

After-School Apprenticeship Program Toolkit (Collaborative for Building After-School Systems)
www.expandedschools.org

Charleston Regional Youth Apprenticeship Program Infographic (South Carolina)
www.charlestonchamber.org

Policies and Procedures for Bridging Youth Apprenticeship to Registered Apprenticeship (Wisconsin)
www.dwd.wi.gov

How to Implement a Pre-Apprenticeship Program (Ohio)
www.education.ohio.gov

DOL YouthBuild Registered Apprenticeship Toolkit
www.workfroceGPS.org

High School Apprenticeship Tools (Department of Labor)
www.youth.gov

Research Studies and Toolkits on the Design and Benefits of Youth Apprenticeships
Youth Apprenticeship: A Hopeful Approach for Improving Outcomes for Baltimore Youth
www.urban.org

Making Youth Apprenticeships Work for Illinois' Young Adults: Community Recommendations for Youth Apprenticeships
www.cjc.net

Potential Role of Secondary CTE Programs in Preparing Students for Apprenticeship Programs
www.innovativeapprenticeship.org

North Carolina Youth Apprenticeship Guide –
www.ApprenticeshipNC.org

Employer's Playbook for Building an Apprenticeship Program-The Manufacturing Institute
www.doleta.gov

Creating a Program-American Institute for Innovative Apprenticeship
www.innovativeapprenticeship.org

EXPANDED PATHWAYS

BUILDING YOUR PROGRAM

AASA
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GETTING STARTED

A compelling rationale for district and school leaders to build partnerships and consensus.

"Policy makers are searching for ways to deal with the erosion of middle-class jobs and the highest rates of youth joblessness since the 1950s. For decades, the transition from school to career has been challenging for youth."

ROBERT L. LERMAN
EMERITUS PROFESSOR
OF ECONOMICS AT
AMERICAN UNIVERSITY

Youth apprenticeships combine classroom instruction and on-the-job professional experiences, allowing students (typically during their 11th and 12th-grade high school years) to pursue a career pathway, earn a salary while being mentored by experienced mentors and coaches, and learn in an experience-based and "blended" setting. Successful apprenticeships combine formal classwork with highly structured workplace experiences leading to potential career options in the chosen pathway.

In comparison to other more short-term work-study options such as internships and shadowing experiences, youth apprenticeships allow participating students to remain with a business, corporation, or other organization for up to two years and beyond. Many youth apprenticeship completers go on to enjoy productive careers in the organization in which they initially studied and worked. These programs also offer opportunities for post-secondary education credits through participating community colleges and universities.

Benefits of Successful Youth Apprenticeship Programs

For educators interested in developing an apprenticeship program in their district, it is useful to consider key requirements established by the U.S. Department of Labor:

Participating Students: Successful youth apprentices earn a certified portable credential(s) accepted by industries and employers throughout the United States. There are multiple benefits of youth apprenticeships for students, include hands-on career training; improved skills and competencies related to success in both career and post-secondary settings; career decision-making and preparation focusing on career growth areas; competitive salaries; and freedom from tuition debt.

U.S. Workforce: Youth apprenticeships ensure that career development programs align with state and local workforce system needs. They result in workers who are highly skilled and productive with access to stable careers. Currently, the U.S. Department of Labor emphasizes a range of high-yield,

high-needs employment areas aligned with youth apprenticeships, including Advanced Manufacturing, Construction, Energy, Finance and Business, Healthcare, Hospitality, Information Technology, Telecommunications, and Transportation.

Federal, State, and Local Governments: Local regions and jurisdictions benefit significantly from successful youth apprenticeships, including sustained technical assistance and support to improve the workforce; credentialing that reinforces national industry-recognized standards; tax credits available in many states for employers participating in apprenticeships meeting federal guidelines and standards; and access to federal resources, including funding from many federal programs specifically designed to sustain and scale apprenticeships in high-yield, high-needs employment areas.

The Context of Youth Apprenticeship Programs in the United States

By 2020 the United States will be short five million workers with the necessary technical certificates and credentials to succeed in high-growth, high-demand industries, according to the Georgetown University Center on Education and the Workforce.

The impact of youth apprenticeships is already evident in many European countries, including Austria, Denmark, Germany, Switzerland, and England. Students there begin their apprenticeships during their late high school years and over a three-year period, combine work-based learning with classroom study in public career schools.

Only 0.3 percent of the labor force in the United States has participated in some form of apprenticeship, unlike many countries (e.g., Germany, where 3.7 to 3.9 percent of the total labor force participate in apprenticeships),

Youth apprenticeships offer a powerful alternative for students hungry for engagement, authenticity, purpose, and a sense of self-actualization in addition to clear benefits to employers, the workforce, and the economy, as cited in The Abell Report (April 2015), "Apprenticeship combines classroom-based vocational education, structured work-place learning, and paid work and production to help youth master an occupation."

"Policy makers are searching for ways to deal with the erosion of middle-class jobs and the highest rates of youth joblessness since the 1950s…For decades, the transition from school to career has been challenging for youth…" according to Robert L. Lerman (Emeritus Professor of Economics at American University) in his study *Apprenticeships: Helping Youth Develop the Skills Needed by Today's Employers.* "Apprenticeships are distinctive in meeting both the supply side and the demand side of the labor market. When robust apprenticeship systems are in place, youth learn employability skills for rewarding careers, youth unemployment is kept low, the state's productivity is kept high, and employers are ensured a workforce with strong technical and employability skills."

Many youth apprenticeship completers go on to enjoy productive careers in the organization in which they initially studied and worked.

BEST PRACTICES

Recommendations for beginning a youth apprenticeship program. Advice from the Department of Labor, and an approach to building partnerships and consensus.

"When I think about Groninger investing in apprenticeships, really it's the kind of thing where we can't afford not to do it. One of the problems we have in the United States is the skills gap."

THOMAS RAY
GRONINGER USA

Building consensus among your stakeholders about the guiding principles for an effective apprenticeship.

The United States Department of Labor identifies five major guiding principles for ensuring effective apprenticeship programs:

1. Active Involvement of Business, Including Apprenticeship Councils, Industry Associations, and Other Partnerships Sharing Administrative Tasks Related to Maintaining the Apprenticeship:

A key component of a youth apprenticeship program's success is the active and sustained involvement of business/corporate participants. These companies will provide a combination of supports for the program, including sustained engagement on the part of their leadership, on-site professional learning, careful and sustained mentoring for apprentices, and active involvement in providing updates about workplace needs and requirements.

2. Structured On-the-Job Training, Including Support and Coaching from Experienced Mentors On-Site:

The commitment of corporate, business, advisory board, and post-secondary partners is a powerful component of youth apprenticeship program success. A majority of students participating in youth apprenticeships acknowledge that on-site mentors become some of their favorite teachers. They often feel a sense of renewed independence, efficacy, and maturation as a result of the coaching, feedback, and respect they receive on-site.

3. Classroom-Based Academic Instruction Related to the Technical and Academic Competencies Required for the Job:

The unique course requirements associated with career pathways related to youth apprenticeships reinforce students' acquisition of the technical and academic competencies required for apprentices' chosen career field and pathway. The curriculum sequence and its implementation should be closely aligned with industry standards and the technical knowledge and skills required for success on the job.

At the same time, classrooms must emphasize a range of 21st century workplace competencies (parallel to many states' Portrait of the Graduate profiles), including

technical skills, communication skills (written and oral), presentation skills, critical and analytical reasoning, creative expression, and soft skills (e.g., interpersonal relations and communication, contributing to team operations, investigation and research, and technology competency).

4. Rewards for Acquisition of Apprenticeship SkillsGains, Including Wages, as Students BeginWork and Pay Increases as They MeetIdentified Performance Benchmarks:

Students, parents, school leaders, and corporations/businesses involved in youth apprenticeship programs strongly assert that these programs/apprenticeships offer unique economic opportunities and the potential for upward mobility for many participating students. In addition to wages earned throughout the apprenticeship experience, youth apprentices enjoy growing wages frequently awarded as they meet or surpass identified performance criteria and related benchmarks. Even more importantly, students and their parents frequently praise the value of the apprenticeship experience and its expansion of students' career awareness, interests, technical skills, and capacity for entering the workforce at a much higher level of the career ladder than they might have with only a high school diploma or college degree.

5. Nationally Recognized Credentialing That Is Portable and Provides Certification That the Apprentice Is Fully Qualified for a Position in the Chosen Industry or Career Field:

Increasingly, employers (especially those in high-tech, high-demand fields) are only hiring individuals with certified technical knowledge and skills required for available positions. Certifications and micro-credentialing are a powerful and growing phenomenon in the workplace—and will be increasingly important for workers as the 21st century evolves and workplace expectations increase. This component is essential to successful youth apprenticeship program design and development.

Engage the right stakeholder groups and individuals.

Encourage potential stakeholder corporations to consider: How might a "grow-your-own" approach help us to ensure a steady labor supply of highly qualified and well-educated workers capable of fulfilling the evolving requirements of key industries?

As Thomas Ray of Groninger USA emphasized in a recent interview: "When I think about Groninger investing in apprenticeships, really it's the kind of thing where we can't afford not to do it. One of the problems we have in the United States is the skills gap. In the Charlotte area alone there are about 6,000 jobs that can't be filled because we don't have people with the training to fill those positions. If you train someone coming in off the street, it's just as expensive to do it that way, but if we do it with apprenticeships, we can bring those people up in the culture of the company and train them in the way that we want them to be trained."

When school and district leaders begin to consider the development of apprenticeship programs, it is critical that they involve business, corporate, financial and other sectors within their community or region.

Early dialogues and sustained partnership will provide invaluable input concerning industry needs, hiring requirements, educational background and skills expected of entering workers, and projections for future growth.

Similarly, cross-institutional partnerships should include immediate participation by potential college and university partners within the area.

Successful apprentices should be able to complete their multi-year experience with solid work credentials, related certifications, and academic credit—resulting in thousands of dollars of savings in college tuition as well as significant advancement for students into their chosen career pathway.

An effective youth apprenticeship program requires sustained and increasing budget allocations to address the need to acquire updated technologies, pay for sustained professional development, fund staffing for both instructors and program coordinators, and related needs.

An essential factor in successful youth apprenticeship programs is the power and necessity of sustained, clear, and collaborative communication and outreach.

Begin to build an apprenticeship ecosystem: important structures, processes, best practices, and relationships.

It is important to revisit with all stakeholders and stakeholder groups the concept of building a "youth apprenticeship ecosystem." Any effective apprenticeship requires careful attention to: (a) workplace needs, (b) building a clear rationale for stakeholder groups, (c) developing and implementing a coherent and aligned curriculum reflective of industry standards, and (d) ensuring that on-site apprenticeship experiences are carefully monitored and supported by experienced mentors and organizational leaders.

The following are key components of a "youth apprenticeship ecosystem" for school and district leaders to share with business/corporate representatives interested in beginning a youth apprenticeship program:

School Infrastructure: Successful youth apprenticeships require appropriate funding, staffing, business and corporate site sponsorships, professional learning, and administrative oversight. Perhaps most significantly, the school infrastructure must be equipped to ensure a sustained commitment to strategic planning to improve each apprenticeship program and ensure that all students succeed.

Purposeful Project Management: Successful youth apprenticeship programs have clear annual program performance targets aligned with the school and district's strategic plan and the needs of the sponsor business/corporation. This project management approach includes clear monthly performance targets for each program, clear product and performance outcomes, identified individuals and groups responsible for leading initiatives, sustainable communication structures and processes, and accountability for reporting on achievement of project benchmark criteria—as well as program modifications if data suggests a need for improvement or enhancement of current operations and structures.

Ensuring Sustainability of Funding Sources: An effective youth apprenticeship program requires sustained and increasing budget allocations to address the need to acquire updated technologies, pay for sustained professional development, fund staffing for both instructors and program coordinators, and related needs. School districts exploring apprenticeships for the first time should also consider the range of federal and state grant opportunities available in this field, especially since many of them focus on start-up and scalability initiatives related to high-yield, high-needs occupational areas.

Business and Corporate Support Systems: Businesses and corporations can use their participation in apprenticeship sponsorship to increase the effectiveness of their workforce—and, in turn, increase their organization's productivity. Youth apprenticeships will expand students' technical skills, prepare them for an increasingly challenging and technical workplace, and ensure that local and regional hiring needs are being met. In addition to the clear benefits to students and their parents/guardians of the apprenticeship experience, there is a very powerful and clear benefit to local and state economies.

Communication and Outreach: An essential factor in successful youth apprenticeship programs is the power and necessity of sustained, clear, and collaborative communication and outreach. Learners and parents must be introduced very early in students' education to the need for career awareness and career development. Parents especially need support in overcoming initial apprehensions about the apprenticeship experience, including questions such as: Is it right for my child?; Will it prevent him or her from going to college?; Isn't a college degree a requirement today for career entry and success? There is also a need for additional focus on professional development for teachers, administrators, and counselors on the value of the apprenticeship experience—and the importance of informing parents and students about that value early in their education.

Developing, Implementing, and Updating a Coherent Curriculum: An effective youth apprenticeship curriculum must include hands-on and personalized coursework aligned with district, state, and federal standards. It should reinforce a high degree of alignment with requirements of the specific career pathway around which the apprenticeship is built. The written and taught curriculum must also be designed to prepare students for required credentialing (e.g., OSHA's 10-hour industry requirement, career certification and credentialing requirements, etc.). Additionally, high school courses must be aligned with both industry-credentialing requirements and the preparation of students for success in post-secondary education related to their field of professional study.

Ongoing Oversight and Needs Assessment: All successful youth apprenticeship programs demonstrate a clear staff and business/ corporate sponsor commitment to meaningful, purposeful, and sustained oversight and needs assessment related to the achievement of students and monitoring of their progress. A successful apprenticeship requires flexibility and awareness of the need to change as technical/ technological advances, performance standards, and workplace protocols evolve and transform themselves. Assessment must be aligned with industry standards, organizational requirements, and national standards that are rigorous, challenging, and current.

Meaningful Program Evaluation: Successful youth apprenticeships require careful project management involving an ongoing commitment to oversight and needs assessment with a purposeful and sustained approach to program evaluation. Program evaluation is especially critical in ensuring that students in the program are successful—and receive timely intervention and support when they experience challenges or require extra coaching and mentoring. The performance criteria for every youth apprenticeship program must be clearly articulated with results analyzed regularly as part of the school and district's approach to strategic planning.

OUTREACH STRATEGIES

Ideas and suggestions for engaging industry partners. The keys to success are clear goals and targeted participation.

Engage Business, Corporate, and Post-Secondary Educators in Exploring Strategies for Helping Students Acquire and Refine Key Workplace Readiness Skills

Build consensus that effective registered youth apprenticeships help students to build and sustain workplace readiness skills while preparing them for a range of other post-secondary options.

Revisit the importance of students' technical proficiency and skills, including acquiring, integrating, and applying industry-based performance standards in authentic projects and professional tasks.

Begin to establish universal expectations about what constitutes a successful 21st century employee, what many refer to as "soft skills." Explore with identified local business and corporate leaders their perceptions about the importance of entering workers' ability to demonstrate:

- Communication Skills (Including Written, Oral, Multi-Media)
- Collaboration and Team Participation Skills
- Self-Regulation and Self-Management Skills (e.g., Goal Setting, Time Management, Understanding of Task Requirements, Emotional Control)
- Higher-Order Reasoning (e.g., Application, Analysis, Interpretation, Synthesis, Evaluation, Creative Expression)
- Use of Technology, Including Computer Applications and Data Analysis

Create an Industry Review Board Comprised of Education and Business Leaders to Assess Industry Needs Within the Region and State

Appoint a leadership team within the district to engage in outreach and data analysis related to economic development and business/corporate employment needs within the district, region, and state.

Engage in outreach to business, corporate, and community leaders associated with identified economic priorities and trends to become members of the school district's industry review board.

If possible, engage local community college and university representatives as members of the industry review board, including potential areas for post-secondary credit opportunities for participating apprentices.

Provide members of this industry review board with an initial orientation to the existing Career and Technical Education (CTE) services and programs offered by the district.

Ask members of the industry review board to provide their feedback and observations about the economic needs—including position requirements—related to their specific business or corporation: What are the skills and knowledge requirements of entering workers?; and what challenges are these leaders facing in filling high-tech, high-skilled positions within their respective areas?

Review with members of the industry review board existing or proposed components of youth apprenticeship programs that may exist or could exist within the district (including Department of Labor requirements, laws, and policies).

Ensure that Education and Business Leaders Share a Common Understanding of the Value, Vision, Long-Range Goals, and Benefits to Students of Youth Apprenticeship Programs

Build consensus to ensure that the vision and mission for a proposed or existing youth apprenticeship program are clear and accepted by members of the industry review board.

Share with business, corporate, and post-secondary leaders sample profiles and case studies of successful registered youth apprenticeship programs (including the importance of helping make learning come alive for students—and the power of aligning classroom and on-the-job learning experiences).

Finalize long-range goals for the youth apprenticeship program(s), including policies and protocols for participating organizations (allowing for variations in on-site design resulting from the business or corporation's focus and apprenticeship model requirements).

Use case study and research-based evidence to help leaders understand that effective apprenticeships are mutually beneficial for students, their parents, and the community/region.

Articulate the economic benefits to students (building significant career preparation skills and aptitudes while relieving them of tuition loan indebtedness) and to the participating businesses/corporations sponsoring apprenticeships (ensuring that they expand the pool of local and available workers capable of prospering in a demanding and technology-driven workplace).

Promote a Spirit of Cross-Institutional Collaboration and Ongoing Quality Control

Engage leaders in discussions about how they can support the kinds of standards-driven quality control essential for program effectiveness and student academic, professional, and social-emotional growth.

Encourage leaders to share their experiences with team-based models of leadership involving shared decision-making, problem-solving, and creative innovation: How can we work collaboratively to ensure that our student apprentices become an integral and positive addition to our workforce?

Create profiles of effective on-site mentors and coaches, striving to ensure that all youth apprentices have site-based mentors with extensive technical experience and knowledge as well as coaching competencies: How will our on-site mentors function as coaches, support systems, and advisors to apprentices, many of whom are experiencing a professional setting for the first time?

How can we work collaboratively to ensure that our student apprentices become an integral and positive addition to our workforce?

Engage business and corporate leaders in discussions of quality control essential at the district, school, and apprenticeship site levels: How can the team ensure that industry standards are carefully integrated into the school-based curriculum, with project-based learning reinforcing students' development of skills and competencies necessary for on-site success?

Explore with industry review board members their experiences with a Total Quality Management approach: How can we ensure that our youth apprenticeship program is designed to promote effective project management principles and strategies (e.g., clearly articulated roles, deadlines, deliverables, and performance criteria)?

Strive to Ensure that All Youth Apprenticeship Leaders are Purposeful and Effective Change Agents:

Ensure that members of the industry review board are aligned in terms of their strategic planning goals and processes.

Work collaboratively to identify youth apprenticeship sites committed to updating their approaches, programs, and practices as industry standards change. These sites also expand to encompass technological changes to ensure organizational growth.

Reinforce the idea that change is an inevitable part of effective youth apprenticeship programs: Leaders must see into the future and articulate their vision for where the district, school, and business are heading.

As change agents, youth apprenticeship leaders are clear that they must continually engage and involve all stakeholder groups, keeping them informed about changing standards, expectations, and structural modifications needed for program improvement, scalability, and sustainability.

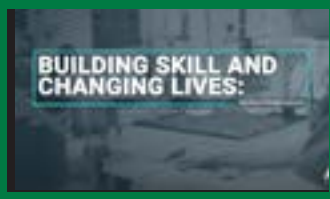
Engage Leaders in Developing and Supporting a Youth Apprenticeship Ecosystem Aligning School-Based and On-Site Programs and Practices

Reinforce with business and corporate leaders that successful youth apprenticeship programs represent an interdependent set of human resources, support structures, policies and practices, and legal requirements.

Explore with these leaders key strategies and processes for establishing, sustaining, and "scaling up" the proposed or existing youth apprenticeship program: How will we fund the program(s)?; How will we sustain the program(s)?; How will we determine if our program(s) should be expanded and made available to an increasing pool of students?

Continue to engage post-secondary, business, and corporate leaders in issues related to program evaluation and oversight, including responding to essential questions such as: How will we ensure that our youth apprenticeship program(s) are effective?; How will we make certain that they change and evolve as our businesses and industries change, especially in light of new and emerging technologies?

CASE STUDY VIDEO LINKS



AASA Cherry Creek Youth Apprenticeships

AASA Charlotte Youth Apprenticeships

AASA Denver Youth Apprenticeships

AASA Highline Youth Apprenticeships

AASA Kentucky Youth Apprenticeships

EXPANDED PATHWAYS

CASE STUDIES

AASA
THE SCHOOL SUPERINTENDENTS ASSOCIATION

CASE STUDY

Denver Public Schools (DPS) CareerConnect Apprenticeship Program

Denver Public Schools, Denver, CO

Superintendent: Susana Cordova

District Enrollment: 93,815

VIDEO LINK

AASA Denver Youth Apprenticeships

EXPANDED PATHWAYS

AASA
THE SCHOOL SUPERINTENDENTS ASSOCIATION

The Denver Public Schools CareerConnect (DPSCC) Apprenticeship Program is designed as an immersive three-year experience in which students work for a company while attending school, gaining hands-on experience as an employee of that company. While maintaining the support structures of their high school, apprentices take both high school and college classes during the week while getting paid to work for one of the district's participating business partners. As apprentices progress each year of their three-year apprenticeship experience, they take on more hours at their work site and more classes on their selected college campus.

Benefits for Students

- Students participating in the apprenticeship program can derive the following benefits:
- Earning a training wage while working in a field that interests them
- Having opportunities to earn an industry certificate and debt-free college credits
- Gaining skills in the workplace that are completely transferable to a variety of professional settings and pathways
- Experiencing a smoother transition from high school to both college and career options

DPSCC is designed to give students early exposure to thousands of career options as they learn more about their own passions and interests. This ecosystem encourages students to take the skills they've learned in the classroom and apply them on the job through shadowing, internships, and formal paid apprenticeships.

Benefits for Education and Industry

- Applied learning and hands-on experience enhances graduation rates.
- Communities and families are supportive and highly engaged.
- The needs of current and emerging career pathways and related requirements is fostered.
- Customized training that meets industry standards, tailored to the specific needs of businesses results in highly skilled employees.
- Employer needs and demands are addressed.
- There is a positive return-on-investment on the value of apprentices' work.

The Apprenticeship Ecosystem

The DPSCC program represents the overall ecosystem in which Denver's youth apprenticeship programs operate. CareerWise Colorado works with school districts, businesses, and colleges statewide and incorporates the following elements of the ecosystem into its design:

- A template for design of the program so that the experience represents an alignment between students' academic experience and industry workforce needs.
- learning pathways, skills, and competencies that are clear, coherent, and validated by the school district, high schools and colleges, and participating partners.
- highly skilled personnel, including a coordinator, guidance counselor, and a principal and administrative staff responsible for ensuring implementation.
- meaningful on-the-job learning designed to orient students to the organizational/industry culture, mentor them and reinforce their mastery of skills.

- involvement of key partners – corporate partners, college and university partners, parents, and students.
- and range of other supports including educator awareness and commitment, effective recruitment and orientation practices, and industry-recognized credentialing.

Programs

The district's goal is to "Help students identify their passions, explore what they love doing, and consider making a career out of it." At this writing students can explore nine career fields:

- **Business**
- **Creative fields (including visual and performing arts)**
- **Education**
- **Engineering**
- **Hospitality**
- **Maker space options**
- **Medicine and health**
- **Public safety**
- **Technology**

In collaboration with their counselors, staff, and parents, students can determine how far they wish to explore their chosen "Connect" field, from exploratory STEM courses

in grades K-8 to foundational industry coursework in grade 9 to specialized industry courses (grades 10-12), which may include college coursework, industry credentials, and portfolio development.

Leadership

Susana Cordova, Superintendent

We are really fortunate to have an entire community-based approach to supporting youth apprenticeships, starting with our governor, who has been incredibly supportive of work-based opportunities for students. Youth apprenticeships is one of those programs that you could call a 'no-brainer.' When our kids participate in youth apprenticeships, they are 2.7 times more likely to graduate on time. Who can argue with that? – particularly when it's creating the workforce that our employers here regionally need.

Gabe Willis, Reata Engineering & Machine Works, Inc.

My company appreciates the young talent we see through the youth apprenticeship partnership with DPS. We are able to grow them and develop the skills that the company needs. We mold them into the employees that we want, rather than getting somebody who thinks they've already done it and may do things differently than we do.

Bernard McCune, DPS Senior Executive Director for the Office of Career and College Success

The race, ethnicity and socio-economic make up of our students in youth apprenticeships is closely aligned to the make-up of the students within our district. And as we continue to grow youth apprenticeships, we see that becoming even more in line. Youth apprenticeships are for every student. We have gone from four high schools who were doing youth apprenticeships just two years ago to twenty high schools.

"We are really fortunate to have an entire community-based approach to supporting youth apprenticeships, starting with our governor, who has been incredibly supportive of work-based opportunities for students."

SUSANNA CORDOVA
DENVER SUPERINTENDENT

CASE STUDY

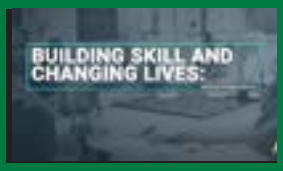
The Cherry Creek Innovation Campus (CCIC)

Cherry Creek School District, Englewood, CO

Superintendent: Scott Siegfried

District Enrollment: 55,000

VIDEO LINK



AASA Cherry Creek Youth Apprenticeships

EXPANDED PATHWAYS

AASA
THE SCHOOL SUPERINTENDENTS ASSOCIATION

The Cherry Creek Innovation Campus (CCIC) is a unique district facility housing an array of career pathway programs closely aligned with the employment and priority needs of local, state, and national businesses and corporations. It is designed to expand the district's commitment to preparing students for the academic and professional demands of the 21st century. The CCIC powerfully exemplifies an integrated cross-functional youth apprenticeship program that school districts can develop, implement, sustain, and scale. Apprentices split their time between traditional high school coursework and on-the-job professional experience. The CCIC also reflects the importance of state-wide coordination and partnerships with local districts to enhance the apprenticeship experience and result in positive outcomes for youth.

Benefits for Students

- Youth apprenticeship can be an options multiplier as both a powerful enhancement to their education and a fast track to an in-demand career. Students participating in the district's apprenticeship program derive the following benefits:
- Nationally recognized industry certification/credential
- Debt-free college credits
- Skill sets that will give them a competitive edge as they enter the workforce
- Students develop independence and self-confidence through their ability to perform difficult tasks
- Strong connections between learning in school and learning on the job
- Multiple pathways that enable students to evolve into workplace leaders and entrepreneurs
- Deeply meaningful work experience
- Mentorship and an extended professional network

Benefits for Education and Industry

- Applied learning and hands-on experience may enhance school retention and graduation rates.
- Community and family involvement with high school education is expanded.
- The needs of current and emerging career pathways and related requirements is fostered.
- Customized training that meets industry standards, tailored to the specific needs of businesses results in highly skilled employees.
- Employer needs and demands are addressed.
- There is a positive return-on-investment on the value of apprentices' work.
- Businesses experience reduced turnover rates among staff.
- Companies help grow and groom a talent pipeline of skilled and loyal workers.

The Apprenticeship Ecosystem

CareerWise Colorado works with school districts, businesses, and colleges in the state statewide and incorporates the following elements of the eco-system elements into its design.

A template for design of the program so that the experience represents an alignment between students' academic experience and industry workforce needs. learning pathways, skills, and competencies that are clear, coherent, and validated by the school district, high schools and colleges, and participating partners.

highly skilled personnel, including a coordinator, guidance counselor, and a principal and administrative staff responsible for ensuring implementation. meaningful on-the-job learning designed to orient students to the organizational/industry culture, mentor them and reinforce their mastery of skills.

involvement of key partners – corporate partners, college and university partners, parents, and students.and range of other supports including educator awareness and commitment, effective recruitment and orientation practices, and industry-recognized credentialing.

Programs

All high schools within the district offer a wide range of CTE programs outside of CCIC. CCIC is not a "comprehensive" home high school. Instead, it serves as a program that students attend part-time while continuing to take classes at their home high school. Cherry Creek district officials aligned their program focus with the Colorado Workforce Development Council and Colorado's Career Clusters to identify the following seven in-demand and growing career pathways offered to students:

- **Advanced Manufacturing**
- **Business Services**
- **Health and Wellness**
- **Hospitality and Tourism**
- **Infrastructure Engineering (Building Trades)**
- **Information Technology and STEAM (Science, Technology, Engineering, Arts, and Mathematics), and**
- **Transportation (Automotive and Aviation)**

Leadership

Scott Siegfried, Superintendent, Cherry Creek School District:

We developed this building, this process, this new approach to education through really engaging with our community. We spent a year interacting with them and talking about what their hopes, dreams, and desires are for their kids. We talked with industry leaders, graduates, alumni, and others to really determine what we needed to do differently to prepare students for their future to make it different from my future. From that conversation, we really came up with this concept of innovation and then developed what it needs to look like to prepare kids to be successful in the pathway they choose as they progress to their future.

Sarah Grobbel, Assistant Superintendent for Career and Innovation, Cherry Creek School District:

It is exciting for me to see a student that I really knew—and see the doors that this apprenticeship could upon for him or her. Now, I have bought in 100% to the apprenticeship process. I see parents and how excited they are. Probably more than anything else, I recognize how many mature and amazing young adults we are now graduating from this program—and recognizing the impact that it could have on our economy here in Metro Denver.

Meaghan Sullivan, Chief Program Officer, CareerWise Colorado:

In Colorado we have high percentages of students going out and pursuing post-secondary education, pursuing traditional college pathways, and they're not getting through to college graduation in the timeline we would hope they would. There are a lot of reasons for that, but what youth apprenticeships offer to students is a way to start working, figure out what you're good at, and see the value the education can have for you at the completion of an apprenticeship. The student can then decide to go right to work or to go back to college and get that higher education, but they do so with so much more knowledge about what they want out of their career and what it's going to take to get there.

"Youth apprenticeships are a critical part of my leadership agenda. It's about moving away from the idea that everybody needs to go to college. Every student needs to find their own individual pathway for their future. That could be a four-year college, a two-year college, an apprenticeship, an internship, a certificate, or the military—or go straight to work. An apprenticeship is important because it gives students real-world work experience before they leave us."

SCOTT SIEGFRIED
SUPERINTENDENT, CHERRY CREEK SCHOOL DISTRICT

CASE STUDY

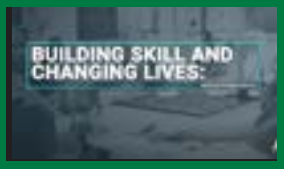
Olympic High School–Advanced Manufacturing and Engineering

Charlotte-Mecklenburg School District, Charlotte, North Carolina

Superintendent: Ernest Winston

District Enrollment: 146,000

VIDEO LINK



AASA Charlotte Youth Apprenticeships

EXPANDED PATHWAYS

AASA
THE SCHOOL SUPERINTENDENTS ASSOCIATION

This is an award-winning career pathway academy designed to teach students about manufacturing processes, product design, robotics, and automation. Its course sequence includes an Introduction to Engineering Design, Principles of Engineering, Computer Integrated Manufacturing, and Engineering Design and Development. On-site experiences involve training and career development at a range of Advanced Manufacturing and Engineering companies, including Siemens, Chiron, Hyde Park Partners, and Yaeger Industries. In addition to powerful preparation for a career in Advanced Manufacturing and Engineering, successful students receive CPCC Articulated Credit and college credit via Central Piedmont Community College. The design principles of the CMS CTE program include the following:

Discover: CMS students to begin to explore their career interests.

Unleash: CMS high school students begin have extensive opportunities to receive industry-recognized certifications, earn credits toward post-secondary degrees, or begin their careers after graduation.

Soar: This phase involves a commitment to ensuring that CMS students are prepared for higher-level courses in college as well as a wide range of high-wage, high-skill, and high-demand careers.

Benefits for Students

- Students participating in the district's apprenticeship program derive the following benefits:
- Attainment of OSHA-recognized certification/credential
- Debt-free college credits
- Skill sets that will give them a competitive edge as they enter the workforce, including critical thinking and problem-solving skills; creativity and innovation; teambuilding and teamwork; and social-emotional development, including a range of non-cognitive abilities.
- Transformed students' view of themselves, their future career pathways, and the relevance of post-secondary education.
- Strong connections between learning in school and learning on the job
- Mentorship and an extended professional network

Benefits for Education and Industry

- Curriculum and the teaching and learning processes are aligned, cohesive and intentional.
- Aligned classroom and on-the-job learning experiences
- Companies experience economic gains resulting from helping to develop and hire local talent, thus expanding the pool of qualified and technically proficient young people entering the workforce.
- Offers meaningful, personalized, and technology-driven teaching-learning experiences for students
- Shared decision-making between businesses and schools
- Employer needs and demands are addressed.
- There is a positive return-on-investment on the value of apprentices' work.

The Apprenticeship Ecosystem

The apprenticeship as an ecosystem is a recurrent metaphor used by many of the leaders we interviewed. Specifically, they suggest that the apprenticeship represents an interdependent set of human resources, support structures, policies and practices, and legal requirements necessary for sustaining the success and viability of individual apprentices as well as the sustainability and scalability of the apprenticeship program. The apprenticeship ecosystem evident in the program involves multiple stakeholder groups, cross-functional teaming, and both internal and external oversight. Quality control is a powerful tool used to ensure that curriculum is updated to align with changing pathway standards, professional learning (both in-school and on-site) is recurrent and consistent. There is also continual monitoring of student progress, including feedback from district, school-based, and on-site mentors, and leaders.

Programs

The school district's Career and Technical Education (CTE) programs are extensive and reinforce students' early career discovery and skill development in a wide variety of

- Olympic High School offers six career pathway programs:
- Advanced Manufacturing and Engineering
- Architecture and Engineering
- Biomedical Exploration
- Carpentry
- Software Development
- Business Management
- Culinary Arts and Hospitality

Leadership

Clayton Wilcox, former Superintendent

The district's youth apprenticeship program is powerful in a number of ways. But what I would say to any leader across the country, if you want to give your kids the opportunity to have mobility in terms of their future, to move beyond their current circumstance, the apprenticeship program is absolutely the way to go. Give your kids the tools to be successful now, so they can apply those tools, and then perhaps take their career to a place they've never even dreamed it would go.

Michael Raelon, Program Coordinator:

The greatest benefit I think for kids is relevancy and authenticity with what they're doing. They're getting to connect the dots between what's going on in classrooms and its relevancy in the real world. Plus, you know, within our experience, we believe in making kids who are career and college ready as most of them don't have any background or context to understand what jobs are even out there today.

Principal Erik Olejarczyk:

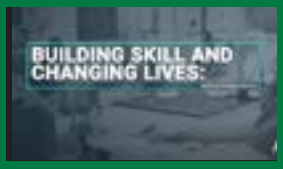
(Students) are getting paid while they're in class, they're getting their tuition paid for. They're going to come out of high school making $40,000 to $50,000 a year with tremendous opportunity for advancement. They're going to come out debt free. I think again for the local economy and the local community, we see a mutualistic relationship. Our goal is to help our students be successful. We're creating children that are employable or that even if they go off to college, they have the opportunity to not be in that 40%, or not being that 60% that don't get a degree.

CASE STUDY

Tech Ready Apprenticeships for Careers in Kentucky (TRACK)

Kentucky Department of Education and the Kentucky Office of Apprenticeship

VIDEO LINK



AASA Kentucky Youth Apprenticeships

EXPANDED PATHWAYS

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THE SCHOOL SUPERINTENDENTS ASSOCIATION

TRACK represents a partnership between the Kentucky Department of Education's Office of Career and Technical Education and the Kentucky Labor Cabinet. Its primary goal is to provide secondary students with career pathway opportunities into Registered Apprenticeship programs. This cross-functional partnership is a business and industry-driven program designed to create a pipeline for students to enter post-secondary apprenticeship training. TRACK employers are able to tailor the program for their specific needs and are able to select the Career and Technical Education courses and students for their apprenticeship pathway. This process creates a competitive recruiting environment to ensure that employers benefit by gaining future employees who have a good foundation and an interest in that occupation. Additionally, it enables students to receive a nationally recognized credential at little or no cost.

Benefits for Students

- The apprenticeship program benefits students:
- Reinforces students' capacity for developing and applying a range of higher order reasoning skills, including critical thinking, creative problem solving, and analysis.
- The experiential learning approach in all TRACK sites addresses students' innate need for high levels of engagement, multi-sensory learning options, growing levels of independence and autonomy, and self-efficacy.
- TRACK students report that they learn best when they receive coaching to develop requisite knowledge and skills—and then participate in self-guided application.
- TRACK addresses the wide range of skills, competencies, and dispositions that include the capacity to work successfully as a member of a group; communicate in written, spoken, and multi-media formats; acquire and apply a range of advanced technology skills and competencies; and a capacity for self-directed work leading to clear outcomes.
- The TRACK apprenticeship experience is powerfully aligned with growing national emphasis upon "personalizing" the learning experience for students.
- Nationally-recognized industry certification/credential

Benefits for Education and Industry

- Apprenticeships ensure that regional industries and businesses have skilled entry-level workers capable of succeeding in a continually changing and technology-driven work environment.
- The economies of the state of Kentucky, its various regions, and locales benefit significantly from sustained technical assistance and support to improve the workforce; credentialing reinforcing national industry-recognized standards; tax credits available in many states for employers participating in apprenticeships meeting federal guidelines and standards; and access to federal resources, including funding from many federal programs specifically designed to sustain and scale apprenticeships in high-yield, high-needs employment areas.

Key Components of the Ecosystem in Kentucky

- The TRACK apprenticeship ecosystem offers students a constellation of interconnected support services and interventions. This ecosystem involves several requirements for its success, sustainability, and scalability:
- Alignment between students' academic experience and industry workforce needs and consistent revision and enhancement of apprenticeship-related coursework to make it timely, relevant, and aligned with changes in industry practices and needs.
- Highly-skilled and committed personnel, including program coordinators, guidance counselors, principals and central office staff responsible for ensuring viable program and policy implementation.
- Industry mentors that reinforce learners' successful mastery of key skills and technical requirements and orientation to the organizational culture and expectations of the business and the industry it represents.
- Industry partners that provide ongoing feedback and recommendations concerning their needs for future employees, the range of technical and workplace skills required for a specific career pathway, and ideas for curriculum design.
- Parent engagement and support; and Student engagement
- Post-secondary partners that grant credits and degrees work closely with industry partners to ensure alignment between courses and the workplace skills required for success.

Programs

A program of study for each TRACK career pathway is a coherent, unduplicated sequence of rigorous academic and career/technical courses including dual credit opportunities, leading to postsecondary degrees and industry recognized certifications and/or licensures:

- **Agriculture, Food, and Natural Resources**
- **Arts, Audio-Visual Technology, and Communications**
- **Architecture and Construction**
- **Business Management and Administration**
- **Education and Training**
- **Finance**
- **Government and Public Administration**
- **Health Science**
- **Hospitality and Tourism**
- **Human Services**
- **Information Technology**
- **Law, Public Safety, Corrections, and Security**
- **Manufacturing**
- **Marketing**
- **Science, Technology, Engineering, and Mathematics**
- **Transportation, Distribution, and Logistics**

"If someone were to ask me, 'Why would you invest or participate in youth apprenticeship program?' I would answer that number one, it's great for the student. It empowers them. It gives them confidence. They get to move forward. It's also great for the family. Number two, it produces a skilled and well-trained workforce. That is the common dialogue across not just Russell County or our region here in Kentucky but, really, nationwide. Without question, we need a trained workforce. A youth apprenticeship program provides that opportunity for business and industry."

MICHAEL FORD
SUPERINTENDENT

Spotlight on Russell County School District

Russell County School District, led by Superintendent Michael Ford, is located in Jamestown, Kentucky, in the south central part of the state. The school system has 3,130 students and the percentage of students qualified for freed and reduced lunch is 73.4%.

The Russell County School District has a close working relationship with the Lake Cumberland Area Technology Center, serving both middle and high school students. Superintendent Ford and the Russell County Board modified curriculum and created flexible schedules to allow students to participate in their on-site apprenticeships and to finish their high school coursework. These changes were key to the program's success: "As superintendent, it's my responsibility to remove obstacles to make it work. Schedules need to be different for students who are working in the youth apprenticeship program. We have to get out of that mindset of 7:30 to 2:30 that everybody needs to be in a seat. Students have flexible scheduling. Some students may come to school every other day. They have an online curriculum, or we just make it work for them. Again, the Kentucky Department of Education affords us the opportunity to offer performance-based credits versus seat-time credits. It's my job and the school district's job to remove barriers to make that work for our industry and our schools."

A Russell County student apprentice shared, "My experience as an apprentice was life changing for me. I had to really make a dedication to a balance of education as well as work. At times, it can be a struggle to find the required number of hours in a day, but to understand also that the reward at the end of it was going to be something that propelled me into several different opportunities"

Leadership

Superintendent Michael Ford:

Youth apprenticeships are growing in Kentucky and leadership across the needed stakeholders is a clear reason why: "One of the key parts of that process is the Kentucky Department of Education working with the Kentucky Department of Labor. Somebody has to connect the dots, including industry and corporate needs, relationships between school districts and the Department of Labor and the Kentucky Department of Education, and a complex variety of other issues. We are very fortunate in Kentucky to have the support of the Kentucky Department of Education and the TRACK program. We can pick up a phone call and talk directly to someone who serves as a liaison.

David Horseman, Associate Commissioner of Career and Technical Education:

...all industries in Kentucky are struggling to find employees and skilled employees are what is in highest demand. Youth apprenticeships represent one of those opportunities that in the past has been offered for training purposes for adults, but we want to speed up feeding the pipeline by starting youth apprenticeships, and we've had great success with it up to this point."

District Action Planning Guide

These 10 questions can help you and your team assess where you are and plan for apprenticeship initiation, growth, or expansion.

GUIDE QUESTIONS	IDEAS AND RECOMMENDATIONS
1. What do you consider to be the most important aspects of an apprenticeship program?	
2. What are the ideas and insights in this toolkit that have implications for your apprenticeship program(s)?	
3. As you reflect upon your students in your own school or district, who might benefit most from participating in an apprenticeship?	
4. As you discuss the reflections from program leaders, which ideas and statements seem especially significant to you? Why?	
5. How might you share key components of this case study with other staff in your school and district?	
6. How might you introduce key concepts and recommendations to business and corporate partners in your area?	
7. What kinds of orientation and information sessions would you recommend for your school or district to help parents understand the value of apprenticeships?	
8. To what extent do classrooms in your school or district reflect the experiences in this toolkit? Which instructional practices might need to be altered?	
9. What elements of your apprenticeship ecosystem need to be strengthened?	
10. What are the implications of the ideas and recommendations presented in this toolkit for your own leadership?	

EXPANDED PATHWAYS

AASA
THE SCHOOL SUPERINTENDENTS ASSOCIATION

Literature on Youth Apprenticeships

AASA worked with four graduate students from American University's School of Education to compile the following Literature Review. We'd like to thank Dr. Reuben Jacobson and his four students: Shallum Atkinson Michaela Cleveland, Renee Metellus, and Wedad Yassin for their contributions to *Expanding Pathways*.

Before You Read

Prior to 2018, there was not a consensus on the definition of youth apprenticeships. While sorting through literature on apprenticeship there were a few terms used regularly, (1) pre-apprenticeship is a curriculum based program within a public-school system that prepares students for entry into a state's Registered Apprenticeship program; (2) Youth Apprenticeship or Registered Youth Apprenticeship are programs that start during high school, most commonly during a student's junior year; (3) Registered Apprenticeships provide participants with advanced technical skills training needed to find employment in specific occupations and typically requiring a high school diploma or equivalent to participate. In school where the first two were not directly visible, we also see Career and Technical Education or CTE class, which are like pre-apprenticeship and youth apprenticeship models, but most commonly aligned to careers that require associates or bachelor's degrees. CTE programs give students the opportunity to start earning credentials towards these careers. When discussing Youth Apprenticeships, they are referred to as RYA only when they are specifically aligned to a Registered Apprenticeship Model. There are apprenticeship models seen in secondary education that are not registered with the Office of Apprenticeships of the Department of Labor and in this paper, they are referred to as Youth Apprenticeships. This research has been collected and reviewed for the purpose of supporting the expansion of Youth Apprenticeships towards Registration.

Introduction

Youth Apprenticeship Programs are not a new concept. As of late, they have reemerged into the education policy conversation as the dynamic and demand of the workforce is rapidly changing. Because of this, the education landscape is prompted to adapt in order to better serve those needs, especially as they pertain to career and technical education. RYAs can play an important role in the development of students and the creation of alternative pathways to success.

The "future of work" is constantly being refocused on early workforce training and job-ready learning. The framework for a youth apprenticeship program should combine academic and technical classroom instruction with work experience, allowing youth to explore a career and develop industry-specific workplace competencies and knowledge while still enrolled in high school (Uvin 2017). This literature review will discuss the current state of youth apprenticeship programs, describe the efforts currently in place to improve and expand them, and the importance of connecting high school students to youth apprenticeship programs.

History

Attempts at expansion of youth apprenticeships in the United States teach us a few things about what is and is not effective. In a policy paper created in collaboration with the Institute for the Study of Labor in Germany, Robert Lerman, current Professor Emeritus of Economics at American University and fellow at the Urban Institute in Washington D.C., takes a close look at how the United States has not managed to sustain a "significant apprenticeship initiative" despite well-researched recommendations to do so by institutions like the Organisation for Economic Co-operation and Development (OECD) (Lerman 2012). Youth apprenticeship expansion has been an American public policy priority just a few times in the past, inspired by a skills gap in the job market. In the late 1980s and early 1990s, there was a federal push for more youth apprenticeships that saw its peak in the School-to-Work Opportunities Act. Although this Clinton Administration initiative was short-lived largely because many of the nation's school leaders, families, and employers could not get over the stigma of tracking toward a career too early, the possibility of more unions and the push for

direct college enrollment, some states went about apprenticeships in their own way and found success using intentional, collaborative tactics (Lerman 2012). Additionally, Lerman supports researcher Alan Hershey's claim that the limited scope of the types of apprenticeships, like job shadowing and traditional mentoring, that STWOA led school leaders to create did little for students' work-based learning that linked to school – the crux of the youth apprenticeship model.

The State of Wisconsin has had their own Youth Apprenticeship program since before the introduction of STWOA. In 1991, it was one of the first states to receive grants to sustain the expansion of apprenticeships. Wisconsin's smaller-scale initiative effectively brings together school system partners, employers, the Department of Workforce Development, and the state's Youth Apprenticeship consortium. Each partner within this system has a list of clearly defined responsibilities for participating in the youth apprenticeship program. The State of South Carolina has also taken a systemic approach to their youth apprenticeship program. Since at least the late 1990s, research has underlined the importance of mentorship as a key tenet of apprenticeships for youth. South Carolina has been incorporating this element in their youth apprenticeships since at least 1995, when researchers conducted a study on two of registered apprenticeship programs and high school students' experiences with them. The study found that mentors to these apprentices were able to effectively "instruct, demonstrate, coach, explain how or why tasks are completed, initiate apprentices into the culture of the workplace, and affirm a learner's value as an employee and as a person" (Evanciew & Rojewski, 1999). Now based in the state's technical college system, Apprenticeship Carolina has given over 12,000 student apprentices a clear pathway between their work in high schools, their work-based learning, and a degree from any one of the state's 16 technical colleges (Berube & Parilla 2018).

Importance of Youth Apprenticeships

Youth apprenticeships carry positives with them for participants who choose these pathways in place of others. Youth apprenticeships can be described as motivating for those who prefer learning by doing as opposed to purely school-based settings (Lerman 2015). Additionally, in another piece, where Lerman talks about how apprenticeships can be used as a tool to help Baltimore youth, he says that apprenticeships help young people develop independence and self-confidence through their ability to perform difficult tasks (Lerman 2015 (2)).

In *The Means To Grow Up,* Robert Halpern says, "Apprenticeship provides a structure for adolescents' need to express, question, imagine, take risks, deconstruct, test limits and make their own meaning." Apprenticeships provide the safe spaces for these structures with reasonable boundaries, with an "authoritative adult" committed to teaching and sharing his/her knowledge (Halpern 2009). Halpern continues to list the many reasons why apprenticeships make developmental sense for adolescents. Apprenticeships build capacity for trust and openness to learning, and youth learn more deeply about occupations they would not have considered otherwise. Likewise, apprenticeships provide students with authentic experiences, giving them the opportunity to take on responsibility and tackle social and moral issues in the workplace (Evanciew & Rojewski, 1999). Apprenticeships also provide a healthy outlet to "decenter" youth. Students learn to focus on the work at hand, and their performance is evaluated within an explicit framework focused on their task rather than the student (Halpern 2009).

Current State

For generations, career readiness standards have been aligned to the connection of opportunity to higher education. The assumption was that if one graduated high school and attended a post-secondary institution, they would receive a high paying job to support themselves and their families, securely placing themselves in the middle class. However, over the last three decades we have seen the lack of affordable postsecondary options leading to high debt or low enrollments/completion into postsecondary institutions (Parton 2018). "While high school graduation rates are at historic highs, still nearly a third of students do not enroll in postsecondary education after graduation" (Parton 2017) Which would be assumed to have led America towards having a nationwide youth unemployment rate of 12.2 percent in July of 2015, more than double the general unemployment rate of 5.3 percent (Chang 2015).

Currently, the Department of Labor runs the Registered Apprenticeship (RA) program. This is the largest official apprenticeship system in the country with about 440,000 participants in 2014 (Chang 2015). RA programs are sponsored by employers, employer associations, labor organizations, and intermediaries. Intermediaries tend to be community-based organizations, nonprofits and/or community colleges (Rice 2016). Some RAs are connected to pre-apprenticeships programs which prepare participants, mainly youth, for RAs, but generally RAs are not targeted towards youth, with the average age of apprenticeships being 30 (Chang 2015).

Brent Parton at New America, while discussing policymakers attempting to connect educational learning and workforce training, noted that an "apprenticeship stands out as compelling, but an underutilized option". Additionally, he found that the programs that are available tend to also be heavily concentrated in skills and trade fields rather than "white-collar" fields like financial services or information technology, (Parton 2017). One of the struggles of facilitating youth apprenticeships has been the lack of RAs industry diversity and the lack of opportunities available for partnerships. Robert Lerman confirmed that apprenticeships in the United States primarily focus on construction and manufacturing occupations, with large-scale programs in carpentry, electrical, machining, maintenance, pipe-lifting, shipbuilding, and welding (Lerman 2015). Historically, vocational training and apprenticeships have been associated with segregating and tracking minority and working-class students into "low-quality" education (Chang 2015).

Prior to 2018, there was no consensus on the definition for youth apprenticeships, and currently the landscape of youth apprenticeships is nowhere near a coherent system, but can be simplified to four frameworks:

Public Statewide infrastructure: A state grants funds to regional consortia that work with employers and school districts to develop and manage youth apprenticeship programs (Parton 2017).

Private-Franchising Model: In this model, private, community organization and associations lead the expansion. Through this franchising model apprenticeship intermediaries independently operate and finance their programs but are governed for quality by the states RA system (Parton 2017).

Statewide Public-Private Partnership: A non-profit serves as a statewide intermediary between the school districts and employers across the state in order to build a system to support youth apprenticeships. This gives the private-nonprofit control over the creation of the program and the facilitation of relationships while also relieving the burden of creating the program from the districts and schools (Parton 2017).

Registered-CTE Programs: In districts where we do not see established pre-apprenticeship or RYAs we may see Registered CTE Programs. In these programs students are enrolled in CTE coursework at their schools that the state has aligned to an RA program in high demand industries. Students taking these courses would receive credit towards an RA program but are not necessarily directly connected or supported in the transition to the RA (Rice 2016).

Efforts to Expand

In September 2015, the Department of Labor announced a plan to provide $175 million in grants to 46 different apprenticeship programs over 5 years. In 2016, while recognizing Governors' unique ability to create statewide strategies to expand apprenticeships, the Department has provided $9.5 million for *ApprenticeshipUSA* State Accelerator Grants, to facilitate the process of apprenticeship expansion and diversification. Since then, in 2018, the Department of Labor announced "awards totaling $183.8 million to support the development and expansion of apprenticeships for educational institutions partnering with companies that provide a funding match component" as well as the provision of "an additional $100 million for efforts to expand apprenticeships and close the skills gap" (Department of Labor 2019).

Although this funding is not uniquely allocated toward the expansion of Youth Apprenticeship programs, these grants have a significant ability to diversify the opportunities available within apprenticeship programs, as well as their power to provide states with more pathways to post-graduation opportunities. With the increased industry diversity in the RA program, we can see a shift in opinions towards apprenticeships. According

to Brent Parton of New America, "well-designed apprenticeship programs can smooth transitions between high school and postsecondary education by helping students acquire skills, experience, and credentials with value in the labor market. For employers citing "soft skill" deficits, out-of-date education programs or the need to tap into younger, more diverse workforce, youth apprenticeships offers another way forward" (Parton 2017).

Furthermore, experts find that there is less of an investment needed for apprenticeship programs than community and technical colleges because employers take on most of those costs on their own, (Chang 2015). This allows for youth apprenticeship programs to be used as selling points to schools knowing that they will not have to take on costs associated with incorporating these types of programs. Also, in addition to low costs being passed onto schools with apprenticeship programs, the students get the unique benefit of "earn-and-you-learn", making money while also working toward certifications and credits (Chang 2015). As the Century Foundation report and others recount, apprenticeship programs greatly benefit students who have limited resources and are seeking opportunities that allow them to hit the ground running and begin building for their future in a way that is more practical to them than entering a college program directly after years of strictly classroom-based learning.

Today, the Center on Education and Skills of New America has launched the Partnership to Advance Youth Apprenticeships (PAYA). PAYA's first initiative was to set clear definitions and guidelines for what high-quality youth apprenticeships look like. The definition and principals can be found here. In January, PAYA launched a grant initiative to support the expansion of youth apprenticeship programs in cities and states across the United States. At the close of the submission period in March 2019, there were 223 applicants, representing 49 of the 50 states and Puerto Rico (White 2019).

Examples of Youth Apprenticeships (Case Studies)

In 2014, the Maryland Economic Development and Business Climate Commission met and recommended that the state of Maryland create an apprenticeship preparation program. Founded in October 2016, the Maryland Apprenticeship and Training Program was awarded a grant of 2.2 million dollars with the goal of "aligning apprenticeships with Maryland's workforce system" (Youth Apprenticeship Advisory Committee Annual Report, 2018). Since its creation, the program has developed a total of 45 Registered Apprenticeship programs, 22 programs were reactivated, and participants have worked in over 34 occupations throughout the state. While focusing on skills in Science, Technology, Engineering and Math, Maryland apprentices have the opportunity receive an industry recognized credential, but they also may receive credits towards an associate degree. Since the pilot program began in 2016, "the number of Registered Youth Apprenticeships has increased by 145% and MATP has over 44 eligible employers (a 215% increase from the first year of the pilot program)" (Bottalico 2016).

In Chicago, After School Matters, a nonprofit focused on creating youth apprenticeships throughout the city, has developed them since 1991. Beginning in 2001, the program has impacted more than 300,000 teens. ASM not only encouraged student reflection but identified "six dimensions to help them reflect on the program experience" (Health 2001). A study on the program conducted in 2006 reported that "At one level, apprentices echo many of the issues raised by instructors [including] not realizing how much work their apprenticeship would be but describe liking the reality of feelings evoked by what they have to do and struggle with"(Halpern 2006). Today, After School Matters is seeing results from their participants, noting that "After School Matters' Freshman On-Track rate has risen from 79 to 89 percent, participants miss fewer school days (7.5 days missed versus 9.6) and 90% of our high school seniors recently graduated making participants 2.7 times more likely to graduate than nonparticipants" (Goerge, Cusick, Wasserman & Gladden 2007).

Further South in the state of Kentucky, the Kentucky Department of Education's Office of Career and Technical Education and the Kentucky's Office of Apprenticeship convened and created Tech Ready Apprentices for Careers in Kentucky. Piloted in 2015, the program places high school students in over 16 career clusters across the state including government and public administration, finance,

marketing, and transportation/logistics. In 2017, the US Department of Education named TRACK as an exemplar Youth Apprenticeship model in the nation in the Opportunities for Connecting Secondary Career and Technical Education Students and Apprenticeship programs. The report highlights the program's full instructional alignment and full program articulation, stating, "in 2014-2015, the statewide TRACK program had 14 participants in its manufacturing program. It has a 100 percent high graduation rate and a placement rate of 25% in apprenticeships, 38% in postsecondary education and 37% in the workforce or the military" (Kreamer & Zimmerman 2017).

In Wisconsin, there has been an increased investment in strengthening the connections between the state's technical College system, state industry association and connections with their longstanding RA system in order to expand the "YA to RA" bridge programs to offer more seamless transitions for youth. (Parton 2017). The department's grants funded apprenticeship opportunities for approximately 2,500 high school students in the 2015-2016 school year (Beard et. al. 2015). Today, Wisconsin still trains more than 5,000 youth apprentices, with the highest-involvement industries being hospitality, health science, and agriculture, respectively (YODA Dashboard 2019). Similarly, there are pre-apprenticeship programs in Connecticut, Florida, Kentucky, and Washington. In a pre-apprenticeship, like the "YA to RA" program, high school students participate in programs that prepare them to enter apprenticeships once they graduate while receiving technical instruction and classroom training in CTE courses (Rice 2016).

Regional youth apprenticeship consortia, such as those in North Carolina, set the precedent for expanding RYAs in a local setting. In the last 3 years, North Carolina has tripled the number of high-school apprentices. Although North Carolina also provides pre-apprenticeship opportunities, the number of participants in their RYA programs is three times more, thanks to the support of 12 regional consortia helping youth connect with careers in advanced manufacturing (Rice 2016).

Conclusion

Youth apprenticeships provide an alternative pathway for students to connect their in-classroom learning to potential future careers. It serves as a low-cost investment for employers and schools, as well as an immediate return on investment for students, as they can earn money as they continue to learn new skills. As referenced in the case studies above, these opportunities allow for growth in student success outcomes, as the chances for long-term success are compounded when students select different routes that better suit their long-term goals. As the future of work conversation continues in school districts, schools must be attentive to implementing these programs that provide options for students as resources for students who may view it as more practical and feasible to earn money, while also continuing to learn in a classroom setting. The federal government is taking a more active role in the expansion of registered youth apprenticeship programs, but there must also be a push coming from the schools themselves to bring these very programs to local communities to solve unique workforce skills gaps and benefit marginalized student populations. It is likely that the government will not only need to play an even larger role in youth apprenticeships going forward, but for them to thrive and be successful across the board, schools and employers will need to invest in them financially and strategically at a much higher level to allow students to have opportunities to grow that exist outside of college. Youth apprenticeship programs have been shown to be beneficial and successful. However, as outlined in the literature review, they are also underutilized, and this ought to change.

The limitations of existing literature on the expansion of Youth Apprenticeships are rooted in the changing dynamic of workforce needs. As youth apprenticeship programs have recently regained popularity, we have yet to see a substantial work with a longitudinal perspective of a program that still exists today. Most of research of this type is outdated and related to the needs of a much different workforce. Additionally, many of the government programs that have been put into action do not have completed reports on their results and impact, as they are still ongoing. This has been a barrier as well. The existing research on youth apprenticeships also did not often focus on industry

specific apprenticeships, although anecdotal evidence in some of the sources listed above shows a broad range of occupations in programs that were being implemented at state levels rather than school levels. This type of review would need to be done as more information becomes available.

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EXPANDED PATHWAYS

AASA, the School Superintendents Association, has created this toolkit that is designed to help secondary and community college administrators build successful apprenticeship programs in coalition with business leaders and professional institutions.

Inside, there is an overview of appreticeship facts and figures, a compelling rationale for advocating and creating your own program, strategies for getting started and for building school, community, and business partnerships to achieve the goal of providing students with exciting career opportunties to find fulfillment and challemge in their future.

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