Youth Apprenticeship Advisory Committee Annual Report 2015

Youth Apprenticeships

The Creation of Maryland's
Youth Employment Pipeline

STATE OF MARYLAND
DLLR
DEPARTMENT OF LABOR, LICENSING AND REGULATION

December 1, 2015

The Honorable Larry Hogan, Governor
The Honorable Thomas V. Mike Miller, Jr., President of the Senate
The Honorable Michael E. Busch, Speaker of the House of Delegate

Gentlemen:

The Department of Labor, Licensing and Regulation recently convened the Youth Apprenticeship Advisory Committee, a group of business, labor, and other stakeholders, to explore the expansion of youth apprenticeships in Maryland pursuant to Chapter 646 of the Acts of 2014. The enclosed report will serve as a blueprint for the Maryland's youth apprenticeship system, in an effort to engage a new generation of workers and employers in Maryland.

The Committee's charge is to evaluate the effectiveness of existing high school youth apprenticeship programs in the state, other states, and other countries. The Committee is further tasked with reviewing and identifying ways to implement high school youth apprenticeship programs in the State, reviewing and identifying means through which employers and organizations can obtain tax credits, grants, and other subsidies to support establishment and operation of high school youth apprenticeship programs, and setting targets for the number of apprenticeship opportunities for youth that the state should reach over the next three years.

The Committee's work was directed under the leadership of Dr. Arnold Packer, a specialist in labor economics with expertise in national and international apprenticeship systems. The Committee surveyed youth apprenticeship models in other states and countries as presented by Dr. Robert Lerman, founder of the American Institute of Innovative Apprenticeship. The Committee also heard from the Maryland State Department of Education and other State agencies regarding existing state resources and programs that could be leveraged in support a youth apprenticeship program. In addition, Committee members took part in the inaugural Transatlantic Apprenticeship Exchange Forum held in Washington, D.C. and Baltimore with representatives from the United Kingdom's apprenticeship program.

As we have learned with the more traditional trade-focused registered apprenticeship programs, apprenticeships are a win-win for the business and the apprentice alike. Studies show that apprenticeships can and do reduce turnover costs, increase job satisfaction and increase productivity. Apprenticeships offer employees the opportunity to earn while they learn and reduce sky-rocketing costs associated with education and training necessary to compete effectively in the workforce.

The enclosed represents the sum of the Committee's work to date and an outline for the Committee's continued work. Twenty-first century businesses demand new ways of thinking that effectively meet complex challenges. I am proud to continue to work with the Committee, and the General Assembly to ensure that Maryland will lead the way in advancing workforce solutions that benefit Maryland's employers, students, and workforce for decades to come.

Best Regards,

Kelly M. Schulz

Kelly M. Schulz
Secretary
Department of Labor, Licensing and Regulation

Youth Apprenticeships
ADVISORY COMMITTEE ROSTER

Secretary of the Department of Labor Licensing and Regulation or the Secretary's Designee:
The Honorable Kelly M. Schulz

State Superintendent of Schools or the State Superintendent's Designee:
Dr. Jack Smith

Secretary of Commerce or the Secretary's Designee:
Roger Venezia

Secretary of Juvenile Services or the Secretary's Designee:
Jay Cleary

The Commissioner of Labor and Industry:
Tom Meighen

Two representatives of The Maryland Apprenticeship and Training Council (MATC):
Edwin A. Cluster Jr.
Grant B. Shmelzer, Exec. Dir., *Independent Electrical Contractors, Chesapeake*

One representative of an employee organization:
Brian S. Cavey, *Joint Apprenticeship and Training Program Director of the International Association of Heat and Frost Insulators & Allied Workers, Local 24*

One employer whose business has a non-joint apprenticeship program:
Larry Robert Minnick Jr., *CEO/President of Minnick's, Inc.*

One representative from a community college:
Nicanor "Nick" Diaz, *Frederick Community College, Trustee*

One individual who holds a doctoral degree and specializes in labor economics with expertise in national and international apprenticeship systems:
Dr. Arnold Packer, *2015 Chair*

One representative of a nonprofit organization involved with employee training and workforce development:
Jason C. Roberts*, Associated Builders and Contractors*

One representative from the Maryland Chamber of Commerce:
Laleh Malek*, McComick & Company, Inc.*

Committee Staff

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EXECUTIVE SUMMARY

Maryland has an opportunity to create a pipeline of skilled and qualified labor for years to come. Establishing a robust youth apprenticeship program in Maryland invests in the State's future workforce and its business partners. Youth apprenticeships offer students the opportunity to earn, learn, and increase job satisfaction. For employers, it can reduce turnover costs and increase productivity.

The Youth Apprenticeship Advisory Committee, formed in 2014 with the unanimous passage of House Bill 1207 (Chapter 646), provides the following report identifying the value of apprenticeships, highlighting best practices from other states and nations, and providing a number of recommendations for future work and legislation. It is the Committee's hope that the enclosed report will serve as a blueprint for Maryland's implementation of a youth apprenticeship system.

Based on the models reviewed, youth apprenticeships are successfully adopted when there is strong buy-in from industry and education partners, financial incentives are provided to employers, mentorship opportunities are provided to the youth apprentice, and financial incentives are provided to employers. The Committee has provided eight recommendations to guide its work in 2016. Those recommendations are:

RECOMMENDATION 1: The Department of Labor, Licensing and Regulation, in consultation with the Department of Commerce, should identify and convene key industry partners to establish an employer engagement campaign for youth apprenticeship.

RECOMMENDATION 2: The Committee should identify and evaluate current and needed resources for the State to establish the role of business intermediaries for youth apprenticeship.

RECOMMENDATION 3: The Committee should establish targets for implementing youth apprenticeships after reviewing and assessing available data. The Committee should also establish performance matrixes to gauge the success of youth apprenticeship programming.

RECOMMENDATION 4: The Committee should review and establish best practices for mentorship.

RECOMMENDATION 5: The Committee should identify policies and suggest changes to regulations that prohibit employers from establishing a youth apprenticeship program.

RECOMMENDATION 6: The Committee should identify and suggest solutions to additional barriers that would inhibit youth from participating in a youth apprenticeship program. These barriers include, but are not limited to, transportation needs.

RECOMMENDATION 7: In consultation with the Maryland State Department of Education and other stakeholders, the Committee should review Maryland's existing models and recommend ways to integrate soft skills training into the training plans for the Youth Apprenticeship program.

RECOMMENDATION 8: The Committee should convene a one-day conference with leading experts to discuss the necessary components of high quality training plans to ensure strong mentorships and the integration of academic, technical, and the essential skills.

The Committee recognizes the need to, and supports the establishment of, a financial incentive for employers. Other states, most notably South Carolina and Wisconsin, use tax credits and grants to entice businesses into investing in youth apprenticeship programs. While the Committee recognizes the need for and supports an incentive, there was no agreement on the details of such an incentive, such as whether the incentive should apply to both youth and adult apprenticeships, or if the total amount appropriated for the incentive should be capped.

INTRODUCTION: THE CREATION OF MARYLAND'S YOUTH EMPLOYMENT PIPELINE

Youth Apprenticeships offer a pipeline of skilled labor in both traditional and non-traditional fields. As our workforce development system adapts to a growing, high-tech economy, Maryland businesses need skilled labor. By coordinating investments in educating and training for Maryland's future workers, the State will ensure that businesses have the skilled workers they need. In short, the State's investment in youth apprenticeships now will ensure that, consistent with Governor Hogan's charge, the State will remain open for business for generations to come.

Recognizing the value of the apprenticeship model, which combines on-the-job learning with classroom instruction, the Maryland General Assembly established the Youth Apprenticeship Advisory Committee, through House Bill 1207 (Chapter 646) in 2014. This report, which represents the Committee's work thus far, begins by identifying the value of apprenticeship through highlighting best practices and lessons learned from other states and nations. The report concludes by outlining the continuing work of the Committee and recommending legislation for the General Assembly's consideration.

Answering a paradigm shift in the new economy

If Maryland is to close the skills gap, we must accept the growing paradigm shift in our rapidly changing economy. For instance, solar energy and cybersecurity, two industries now emerging in Maryland, will likely provide a wide range of occupations in the coming years. In short, the State must explore new demand-driven public-private partnerships that will train the workforce of tomorrow. Engaging youth in an innovative apprenticeship program, in both traditional and non-traditional apprenticeship fields, is one example of how Maryland's workforce system will expand its current career pathways.

Youth apprenticeships provide an opportunity for high school students to gain valuable on-the-job skills while taking classes and earning money. Although apprenticeships in Maryland are open to anyone over 16 years old,[1] employers, education officials, and policymakers have not, until recently, come together to design a program based on best practices that addresses the specific needs of high school students and employers.[2] The Youth Apprenticeship Advisory Committee, with its broad and diverse membership, has studied other youth apprenticeship programs and a variety of occupations and has developed recommendations and best practices that will help design an innovative state model aimed at attracting and training large numbers of high school students and employers.

PART I: THE SKILLS GAP & YOUTH EMPLOYMENT

The overall economy has improved since the Great Recession, yet high rates of unemployment and underemployment still persist among our youth. In December 2014, the national rate of unemployment among 20-24 year olds was 10.8 percent and, among 16-19 year olds was an even greater 16.8 percent versus

[1] Sixteen year olds participate with parental consent.
[2] Many Committee members have also been working with the State Department of Education to design a pilot program to implement HB 942 (2015), known as Apprenticeship Maryland.

the overall rate of 5.6 percent.[3] In Maryland, according to a 2014 report by the Maryland Task Force to Study Economic Development and Apprenticeships, over one-third of the State's out-of-school 19-22 year olds are without jobs.[4]

Often, candidates for entry-level jobs have degrees and/or certificates, but lack the on-the-job experience to function at a fully proficient level. Evidence further suggests that gaps in skills are contributing to these high rates of unemployment and underemployment among our youth. Anecdotally, both students and employers have recognized the skills gap. A 2005 Public Opinion Strategies study on youth noted that a "substantial number of recent public high school graduates feel that gaps exist between their high school education and the skills, abilities, and work habits that are expected of them today."[5] A 2014 Public Opinion Strategies follow-up report on business found that four of five national employers felt that recent public high school graduates have gaps in preparation for jobs and advancement in their company.[6]

Accenture and the Manufacturing Institute estimate that mid-sized manufacturers alone suffer more than 11 percent loss in annual earning (or $4.6 million annually) because of the skills gap.[7] Nationally, "40 percent of U.S. employers struggle to fill more than 5 million open jobs."[8] Reported estimates find that, "more than 75 percent of manufacturers report a moderate-to-severe shortage of skilled workers, and the problem is expected to grow."[9] If left unaddressed, the skills gap could cause more than 5 million positions to go unfilled by 2020.[10]

Recognizing that high schools students would benefit from better aligning curriculums with employer needs to address this skills gap, the Council of Chief State School Officers made various recommendations for states to examine and adjust their Career and Technology Education (CTE) programming in November 2014, including:

1. High school programs must be more responsive to the labor market by enlisting the employer community;
2. States must significantly raise the threshold for quality career pathways in secondary schools -- previously a CTE / career prep option was seen as the "less rigorous" option; and,
3. States must make career prep matter to schools and students.[11]

A youth talent pipeline created by the establishment of a robust youth apprenticeship program in Maryland, while not a cure-all, will benefit youth, employers, and the economy at large. For youth, it will provide a substantially greater opportunity to secure meaningful employment. It will also provide Maryland's current businesses, and those businesses that seek to relocate to Maryland, with a pipeline of talent willing to learn.

[3] U.S. Chamber of Commerce Foundation's Center for Education and Workforce, 2015
[4] Maryland Task Force to Study Economic Development and Apprenticeships, 2014
[5] Peter D. Hart Research/Public Opinion Strategies, 2005
[6] Achieve, 2015
[7] U.S. Chamber of Commerce Foundation's Center for Education and Workforce, 2014
[8] U.S. Chamber of Commerce Foundation's Center for Education and Workforce, 2015
[9] U.S. Chamber of Commerce Foundation's Center for Education and Workforce, 2014
[10] Carnevale, Smith, and Stohl, 2013
[11] Council of Chief State School Officers, 2014

PART 2: EXISTING TRAINING & EDUCATIONAL MODELS

Various models exist for both apprenticeships and youth education and training. While not exhaustive, the following section details the current landscape for both.

REGISTERED APPRENTICESHIP

Registered Apprenticeship is a formal training model that combines on-the-job learning with related classroom instruction. The model best fits occupations that require independent judgment and the application of manual, technical, or professional skills. Apprentices are full time employees from day one and receive wages that increase as skills are gained. Each registered apprenticeship program operates independently and develops training standards that are customized to the needs of the participating employer(s).

In Maryland, the Department of Labor, Licensing and Regulation's Office of Apprenticeship works with the Maryland Apprenticeship and Training Council (MATC) to approve and register apprenticeship programs. When an apprentice completes a program, he or she receives a nationally recognized certificate of completion from the Department of Labor, Licensing and Regulation.

There are three types of skills assessments for Registered Apprenticeships:[12]

- **Time-Based** – Apprentices must complete at least 2,000 hours of on-the-job learning and 144 hours of classroom instruction per year of the apprenticeship program. The construction industry has historically relied on this model, recognizing that it typically takes a certain number of hours to master specific trade skills.

- **Competency-Based** – Apprentices must demonstrate proficiency in a given competency before advancing in the apprenticeship. Competency-based programs include the same training modules as time-based programs, but apprentices may accelerate their training by completing competencies more quickly than they would with a traditional, time-based model. The competency model recognizes that apprentices vary in their experience, capacity and skillsets. For example, high school students who have participated in one of the State's CTE Career Cluster programs may already possess some transferable skills, but may have other gaps in knowledge. Returning military veterans similarly may have transferable experience, which can be proven through demonstrating competencies that they can "fast-track" through, but may also have other gaps in knowledge.

- **Hybrid-Based** – Apprentices may advance through modules as they demonstrate proficiency, as in a competency-based program, but must also complete a specific number of hours of training. The number of hours may be less than the number required by a time-based program. To date, MATC has approved two hybrid models that combine aspects of both time-based and competency approaches.

[12] The Urban Institute is conducting research on skills assessment models. The results of that study are forthcoming.

PRE-APPRENTICESHIP

Pre-apprenticeship programs are designed to prepare individuals for success in Registered Apprenticeships through development of job readiness skills. Like Registered Apprenticeships, pre-apprenticeships involve industry-based training and classroom instruction. Pre-Apprenticeships are based on industry standards, approved and affiliated with a Registered Apprenticeship partner, and prepare individuals with skills and competencies needed to enter a Registered Apprenticeship program.

YOUTH APPRENTICESHIP

There is no single definition for a Youth Apprenticeship program, nor is there uniformity among the various youth apprenticeship programs in existence today.

Generally speaking, a youth apprenticeship program offers juniors and seniors in high school the opportunity to earn while they learn in a structured program that combines on-the-job learning with a mentor and related classroom instruction. A 1993 report by Jobs for the Future identified 6 key design elements of a youth apprenticeship program that are still relevant today:

1. Employers provide both paid work experience and structured work-site learning;
2. Schools integrate academic and vocational learning;
3. School and workplace learning are coordinated and integrated;
4. High school and postsecondary programs are articulated and last at least 2 years;
5. Completers receive widely recognized credentials of both academic and occupational skills mastery; and
6. Programs are governed by broad coalitions of institutional partners.[13]

CAREER TECHNOLOGY EDUCATION (CTE)

Maryland Career Technology Education (CTE) programs are currently offered to high school students. All CTE programs are aligned to established academic, technical and employability skill standards to ensure student preparation for college and careers. These programs also include work-based learning opportunities (e.g. internships, clinical experiences, or industry-mentored projects) tied to the student's area of interest. Upon completion of a Maryland CTE program of study, students also have the option to earn college credits and/or industry-recognized credentials such as certifications and licenses.

With its industry and higher education partners, Maryland organized its CTE program around ten career clusters—groupings of related occupations that, together, constitute a full range of careers. The clusters help connect educators and employers and provide a framework for responsive, well-articulated workforce development. Within each career cluster are 4–9 more specific career pathways, and populating those pathways are 43 distinct programs. For a list of career clusters offered by county, see **Appendix A**. For a complete list of career clusters, pathways, and programs, visit the CTE website http://www.mdcteprograms.org.

While Maryland's CTE training through the public school system has been in existence for a number of years, youth apprenticeships offer a new focus on work-based learning opportunities. CTE offers a rich classroom-based form of learning, and youth apprenticeship opportunities created under this initiative will afford Maryland's youth with a deeper understanding and appreciation of the workplace. Additionally, youth apprentices will not only receive academic credit, but may likely begin his or her path towards a lasting and

[13] Smith, 1997

satisfying career. In short, CTE and youth apprenticeship programming will serve as two pathways for which Maryland's students can be introduced to post-secondary employment.

Maryland's CTE Career Clusters	
1. Arts, Media and Communication	6. Health and Biosciences
2. Business, Management and Finance	7. Human Resource Services
3. Construction and Development	8. Information Technology
4. Consumer Services, Hospitality and Tourism	9. Manufacturing, Engineering and Technology
5. Environmental, Agricultural and Natural Resources	10. Transportation Technologies

PART 3: LEVERAGING SUPPORT FOR YOUTH APPRENTICESHIPS

Providing apprenticeship opportunities for youth has been universally endorsed by governmental, political, business and education leaders. In his 2015 State of the Union Address, President Barack Obama stated, "I'm asking more businesses to…offer more educational benefits and paid apprenticeships — opportunities that give workers the chance to earn higher-paying jobs even if they don't have a higher education." Investments in apprenticeship opportunities have also become a focal point during the 2016 Presidential Campaign with Hillary Clinton, Marco Rubio, and Scott Walker all pledging to increase apprenticeship opportunities.[14]

Similarly, businesses outside of the traditional, trades-specific apprenticeship world have started to embrace the apprenticeship model. CVS Health and UPS have created new apprenticeship opportunities. CVS Health now sponsors two Registered Apprenticeship programs, wherein participants receive classroom and online instruction, professional mentorship and on-the-job learning, as well as pre-employment and post-placement retention support.[15] UPS has also pledged to send 2,000 people through their apprenticeship program by 2018, which features training in package delivery, operations, and automotive repair.[16]

Maryland has a chance to establish a new industry-driven approach to training by engaging youth in non-traditional apprenticeship fields. Under this model, high school students can gain valuable on-the-job skills while taking classes and earning money. Currently in Maryland, opportunities have been limited to traditional apprenticeship (i.e., building trades). The Youth Apprenticeship Advisory Committee, with its broad and diverse membership, has studied other youth apprenticeship programs in a variety of occupations and has developed recommendations and best practices in the creation of an innovative state model aimed at attracting and training large numbers of high school students and employers.

CURRENT MARYLAND YOUTH APPRENTICESHIP EFFORTS

Chapter 646 of the Acts of 2014[17] established the Youth Apprenticeship Advisory Committee. Committee members were appointed in 2015 by Governor Hogan and held their first meeting in July, 2015. The Committee has been fulfilling its mission by evaluating the effectiveness of existing high school youth apprenticeship programs based on a systematic review of relevant data and experience. The Committee is also reviewing ways to implement high school youth apprenticeship programs in the State; reviewing ways employers and organizations can obtain grants, tax credits, and other subsidies; and, setting targets for the

[14] Schwartz, 2015
[15] CVS Health, 2015
[16] O'Leary, 2014
[17] Maryland Labor & Employment Article Section 11-409

number of youth apprenticeship opportunities the State should reach between now and 2017. Finally, the Committee is submitting this annual report to the General Assembly recommending legislation to promote high school youth apprenticeship programs in the State.

The Committee, under the Chairmanship of Dr. Arnold Packer, met four times in 2015. The Committee received several briefings, including an update on the Youth Apprenticeship Pilot Program, which was established in Chapter 140 of the Acts of 2015,[18] a presentation by Dr. Robert Lerman, founder of the American Institute of Innovative Apprenticeship, and briefings on successful state and private programs. Committee members participated in the inaugural Transatlantic Apprenticeship Exchange Forum, held in Washington, D.C. and Baltimore with representatives from the United Kingdom's apprenticeship program. The Committee's findings and recommendations, based on the presentations provided, are stated herein.

APPRENTICESHIP MARYLAND PILOT PROGRAM

The State's first youth apprenticeship pilot program, Apprenticeship Maryland, was created in Chapter 140 of the Acts of 2015.[19] Apprenticeship Maryland will prepare students to enter STEM (Science, Technology, Engineering and Math) and manufacturing industries by providing on-the-job learning and related classroom instruction that lead to licenses and certificates necessary for a skilled occupation.

This pilot program is a partnership between the Maryland Departments of Labor, Licensing and Regulation, Education, and Commerce. As outlined in the legislation, Apprenticeship Maryland is a 2-year pilot program that requires students to complete 450 hours of on-the-job learning and at least one-year of classroom instruction related to the eligible career track. For comparison, state and federal Registered Apprenticeship programs require 2,000 hours of on-the-job learning per year and 144 hours of classroom instruction per year.

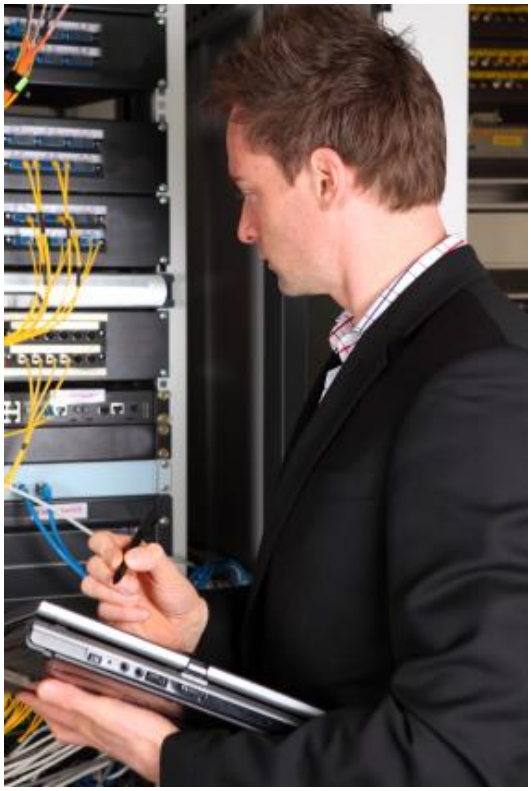
The Maryland State Department of Education, in consultation with the other departments, has chosen Frederick and Washington Counties as the two sites to pilot the Apprenticeship Maryland program. The participating school systems, in accordance with statute, will recruit so that up to 60 students will be selected to participate in the program. Eligible students must be juniors or seniors in a Maryland public high school, must have interest in obtaining a license or certification in a skilled occupation, and must be willing to work a minimum of 450 hours in on-the-job learning with an eligible employer.

Eligible employers are businesses approved by the Maryland Apprenticeship Training Council with an apprentice position available for a high school student in one of the eligible career tracks. The program will begin in the summer of 2016 and will last two years, after which the Department of Labor, Licensing and Regulation and the Maryland State Department of Education will submit a joint report to the General Assembly detailing the effectiveness of the program and recommendations to expand or discontinue the program.

[18] Maryland Labor & Employment Article Sections 11-405(b) and 11-603

[19] Ibid

The Maryland State Department of Education received a $10,000 grant from the Longview Foundation for World Affairs and International Understanding will be used by the local school systems to help launch this pilot program. The Maryland State Department of Education distributed a Request for Proposals (RFP) to each school system superintendent on September 18th, with the deadline to return grant proposals by November 4th. In late November,[20] a team from the Maryland State Department of Education, the Department of Labor, Licensing and Regulation, and the Department of Commerce reviewed and ranked the grant proposals and recommend to the Maryland State Department of Education those eligible for consideration for a grant award and thus participation in Apprenticeship Maryland.



Both school systems will establish a Maryland Apprenticeship Local Advisory Committee, which must include representatives from:

- The area's local Workforce Development Board (Local Board);
- The county or city economic development office;
- Employers (also referred to as "Sponsors");
- Secondary and postsecondary education;
- Professional school counselors;
- Government agencies;
- Local chamber of commerce; and,
- Local school system and school liaisons; and other stakeholders.

These committees, modeled after local consortiums that run existing state youth apprenticeship programs in Wisconsin (as discussed below), will be responsible for implementing the local program and recruiting eligible businesses and students. Potential industry partners and employers will be identified by the Departments of Labor, Licensing and Regulation and Commerce. The Departments of Labor, Licensing and Regulation and the Education will provide technical assistance to the chosen school systems.

PART 4: NATIONAL MODELS OF YOUTH APPRENTICESHIP

A number of states have successfully implemented youth apprenticeship programs. The Committee has examined efforts in Georgia, Wisconsin, Arkansas, and South Carolina. The Committee also examined models in Switzerland, Germany, Canada, and the United Kingdom. Maryland can glean important information from national and international best practices and lessons learned, but the Committee acknowledges that these models cannot be easily transplanted into Maryland's institutional context without careful consideration of the State's local nuances and complexities. Individual case studies are provided in **Appendices B and C.**

Through its research and discussion, the Committee has noted a number of key factors in successfully implemented Youth Apprenticeship models.

[20] This meeting did not happen before submittal of this report.

KEY FACTOR #1 – STRONG INDUSTRY BUY-IN

A youth apprenticeship program would not be possible without the ongoing support of businesses that employ youth. Greater employer participation leads to improved outcomes and relevancy for both the apprentice and employer. The employer, with some exceptions, provides the wages. In Georgia, for instance, experiences range from short-term, unpaid job shadowing to paid part-time employment. Students average as little as 10 hours per week at the work-based learning site to 30 hours per week. When salaries are provided, the youth apprentice earns minimum wage or higher.

In Georgia, the employer decides who to hire and ensures that the youth apprentice is safe while on the jobsite and protected by workers compensation. Similarly, the youth apprenticeship program in Arkansas also has strong industry buy-in. Some key industry aspects of the Arkansas Program include:

- Strong employer commitment and involvement;
- High-quality supervised learning opportunities for students at the work site;
- Integrated academic and vocational teaching and learning in both the classroom and at work;
- Interactive, team-based learning in the classroom;
- Competency-based measures for evaluating student progress;
- Academic and occupational credentials, and,
- Explicit discussions of issues presented by diversity in society and the workplace.

Unlike Georgia where the local school system runs the youth apprenticeship program, South Carolina relies on apprenticeship consultants or intermediaries who "sell" apprenticeships to businesses. These individuals, employed by the state's technical college system, meet with business leaders in an effort to promote and expand apprenticeship opportunities. They are highly trained in the intricacies of an apprenticeship system and understand employers. They complete all necessary paperwork for the business to take advantage of the state's $1,000 tax credit per apprentice, as well as any additional documentation needed to accept an apprentice. The apprenticeship consultants ease the concerns of reluctant employers who believe that they do not have the time or resources to develop an apprenticeship program.

KEY FACTOR #2 – EDUCATOR BUY-IN

Under many of the models, a school system (or a consortium) is used to establish learning experiences for the participant. In almost all cases, the school system recruits students in the 11th or 12th grade and students are granted release time from the school for on-the-job learning. The state's education system is responsible for developing curriculum and for providing the participant with credit, ranging from a high school diploma or GED®/High School Equivalency Diploma (HSED), to post-secondary education credit.

In Georgia, the state's Department of Education partners with the state's Department of Labor and the Department of Technical and Adult Education. In Wisconsin, a regional consortium, which consists of one or more school systems, public agencies, nonprofit organizations, colleges in the Wisconsin Technical College System, Registered Apprenticeship(s), organized labor, employers, and others, agree to be responsible for implementing and coordinating a local youth apprenticeship program.

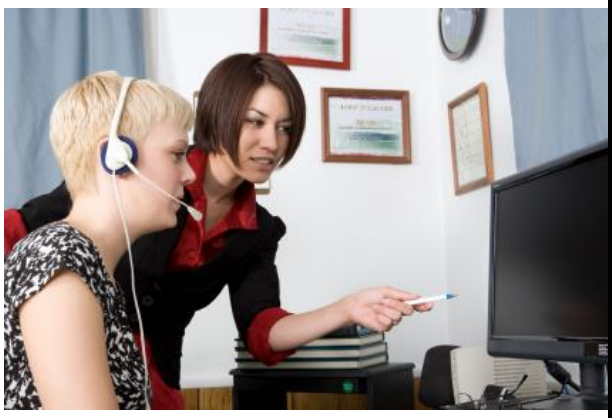
The Wisconsin program has two youth apprenticeship levels for eligible high school juniors and seniors, which vary by program length and requirements. Youth apprentices may remain in the program for 90 days after they graduate from high school, or after they complete a GED®/HSED program. Students may be enrolled in the program longer than two years if they are still enrolled in high school or a GED®/HSED program. Students enrolled in the high school/tech college model may remain in the program for up to 12 months after graduating from high school, completing the second year of their Youth Apprenticeship program while enrolled in a technical college for related instruction.

The Arkansas Youth Apprenticeship program enrolls students at the end of the 10th grade into a three or four year program of study that begins in the 11th grade and ends with the attainment of a postsecondary associate degree, certificate and/or completion of a traditional apprenticeship. To be eligible for participation, a student must:

- Be between 16 and 21 years of age;
- Enter the youth apprenticeship program before entering the 11th grade;
- Have a three to five year career plan that includes high school, postsecondary education, and training;
- Agree to a three to five year apprenticeship program; and,
- Experience work in his or her chosen occupational cluster.

Those who succeed obtain:

- Certification in his or her occupation, and;
- A journeyman license; and,
- A postsecondary certificate, diploma or degree.



KEY FACTOR #3 – MENTORSHIP

A supportive adult mentor is critical to a student's success in any work-based learning program. A mentor provides the apprentice with one-on-one learning opportunities in the workplace setting. Typically, mentors are more experienced individuals to which the young apprentice could go for guidance.

In Georgia, each youth apprentice is assigned a skilled mentor. One mentor may work with more than one youth apprentice in a company. Mentor training varies, but mentors in several programs receive a minimum of a 4-hour training session. Several youth apprenticeship coordinators have subsequently developed handbooks to describe mentors' roles and expectations.

The Committee briefly heard from Maryland-based McCormick and Company regarding their mentorship program. A representative from McCormick noted that a robust mentorship program has provided a number of benefits including increased loyalty and lower turnover. The Committee will continue to review mentorship programs and best practices as it continues its work in 2016.

KEY FACTOR #4 – FINANCIAL INCENTIVES

In some, but not all, state models, the employer receives a financial benefit from the state government through either a tax credit or other means. In South Carolina, eligible businesses receive a $1,000 tax credit per Registered Apprentice employed for at least seven months during each year of apprenticeship, for up to four years or $4,000 total. The tax credit is intended to offset the direct and indirect costs of establishing the program. Costs may include course design and development, instructional costs, training material and supplies, maintaining records, and administering the program.

Arkansas also provides tax incentives. Qualifying employers receive a $2,000 credit, or 10 percent of the wages earned by the youth apprentice (whichever is less) against State Income Taxes. In Georgia, the state legislature appropriates $3 million annually to the Georgia Department of Education's grants budget to support 150 Youth Apprenticeship Coordinators around the state. Participating school systems, or apprenticeship consortiums, receive grant funds to hire youth apprenticeship coordinators to develop a certified educational apprenticeship plan.

In Wisconsin, on August 20, 2015, Governor Scott Walker and Department of Workforce Development Secretary Reggie Newson announced $2.2 million in Youth Apprenticeship grant awards to 32 regional consortiums. The awards will be used to sustain and expand local, in-demand training opportunities for approximately 2,500 high school students across Wisconsin for the 2015-16 school years.

PART 5: COMMITTEE RECOMMENDATIONS AND CHALLENGES

The Youth Apprenticeship Advisory Committee is charged with building on best practices to design an effective program that meets Maryland's unique needs. The Committee believes that a successful Youth Apprenticeship Program will close the gap between students' skills and employers' needs. New policy, regulation, and legislation may likely be needed to better align workforce development, economic development, and education entities with industry demands.

BRIDGING THE GAP BETWEEN STUDENT SKILLS & EMPLOYER NEEDS

A 2015 U.S. Chamber report on building a youth employment pipeline asserted, "'Not knowing where to start' is the most commonly cited barrier to developing a youth employment initiative."[21] The Committee believes employer engagement is a good place to start. Employers are vital in identifying the skills and training that are in high-demand. A youth apprenticeship program must, however, be flexible to withstand and adapt to the ever-changing demands of industry.

Employers must see the benefit to participating in the program. The recent report from the U.S. Chamber referenced above finds that employing youth benefits employers. The report concludes that youth workers fill critical skills gaps, increase workforce diversity, and help drive new ideas.[22] For the businesses that are unaware of these benefits, consultants, otherwise known as intermediaries, can help spread the positive message.

South Carolina, for instance, uses "apprenticeship navigators" dedicated to marketing apprenticeships to employers and promoting the value of participating. These consultants are skilled and equipped with knowledge of the state's labor market and apprenticeship opportunities. Navigators also provide businesses with all documentation needed to begin an apprenticeship program. In other words, apprenticeship consultants speak the language of business and can sell the benefits of apprenticeship.

Maryland has business representatives who may, with training, fill this role. Commerce and the Department of Labor, Licensing and Regulation have staff dedicated to interacting with businesses on a regular basis. Business Development representatives from Commerce are charged with retaining and growing existing Maryland businesses, providing support for businesses to expand through assistance with business development, finance and regulatory issues, as well as actively recruiting new businesses nationally. The Department of Labor, Licensing and Regulation's Business Service representatives work with companies throughout the State to understand specific business employment needs and to assist with workforce

[21] U.S. Chamber of Commerce Foundation's Center for Education and Workforce, 2015
[22] Ibid

development strategies. The Department of Labor, Licensing and Regulation also has a few Apprentice Navigators who interact with businesses to promote apprenticeship opportunities.

Looking ahead to 2016, the Committee will continue its research to determine whether current Maryland resources are sufficient or whether additional resources are needed to create or expand the role of the business intermediary. The Committee will also examine technology based solutions that may provide an important nexus between prospective employers and employees. In particular, the Committee will examine resources provided by internet-based resources such as LinkedIn, which may appeal to youth apprenticeships if marketed correcly.

To bridge the gap between student skills and employer needs, the Committee offers the following recommendations:

RECOMMENDATION 1: The Department of Labor, Licensing and Regulation, in consultation with Commerce, should identify and convene key industry partners to establish an employer engagement campaign for youth apprenticeship.

RECOMMENDATION 2: The Committee should identify and evaluate current and needed resources for the State to establish the role of business intermediaries for youth apprenticeship.

RECOMMENDATION 3: The Committee should establish targets for recruiting youth apprentices in Maryland after reviewing and assessing available data. The Committee should also establish performance matrixes to gauge the success of youth apprenticeship programming in Maryland.

RECOMMENDATION 4: The Committee should review and establish best practices for mentorship.

BRIDGING THE GAP BETWEEN POLICY & REGULATIONS

Even if businesses and a pool of students are willing and available, governmental and industry policies and regulations must foster an environment in which Youth Apprenticeship programs can grow and expand. Many important safety-related measures currently ensure workplace safety and protect employees; yet these same protections may prohibit youth apprenticeship opportunities in certain fields. For example, some regulations/policies prohibit persons under the age of 18 from entering onto the floor of a manufacturing facility.

RECOMMENDATION 5: The Committee should identify policies and suggest changes to regulations that prohibit employers from establishing a Youth Apprenticeship program.

RECOMMENDATION 6: The Committee should identify and suggest solutions to other barriers that inhibit youth from participating in a Youth Apprenticeship program. These barriers include, but are not limited to, transportation needs.

BRIDGING THE GAP BETWEEN EDUCATION & TRAINING

U.S. Labor Secretary Tom Perez recently stated, "At the educational level, we need a comprehensive strategy to change the hearts and minds of parents. There are highly selective, four-year colleges that are easier to get into than many apprenticeship programs."[23] Helping parents and students to recognize the value of apprenticeship will be vitally important for the success of Apprenticeship Maryland.

[23] Schwartz, 2015

Furthermore, in order to thrive in the workplace, every employee must demonstrate certain skills and behaviors. The Committee recognizes that time management, customer service, professional appearance, appropriate conduct and personal responsibility are important traits of successful employees, including youth apprentices who may be entering a workplace environment for the first time. Occupational and technical expertise are also valuable, however, of equal importance are "essential skills," such as communication, interpersonal, technology, learning, and thinking.

The Committee believes that developing and integrating "essential skills" training is vital to the success of the youth apprenticeship program, and recommends that it continue its work in 2016 to ensure that these skills can be integrated into Maryland's youth apprenticeship program. The Committee also discussed whether an assessment of the youth apprentice's progression in communication, interpersonal and other skills should be included in Maryland's youth apprenticeship programming; yet, no consensus amongst the Committee's membership for such an employer assessment was reached. The Committee looks forward to discussing all matters regarding essential skills training in 2016.

RECOMMENDATION 7: In consultation with the Maryland State Department of Education and other stakeholders, the Committee should review Maryland's existing models and recommend ways to integrate soft skills training into the training plans for the Youth Apprenticeship program.

RECOMMENDATION 8: The Committee should convene a one-day conference with leading experts to discuss the necessary components of high quality training plans to ensure strong mentorships and the integration of academic, technical, and the essential skills.

PART 6: RECOMMENDED LEGISLATION

The Committee recognizes that groundwork must be laid now if a state-wide youth apprenticeship program is going to function in the next few years. State models examined above contain various financial incentives for participating employers. The $1,000 tax credit is one of the ways that South Carolina engages employers. Representatives from South Carolina shared with Committee representatives that the tax credit opens doors, allowing consultants to begin discussing with prospective employers that may be unaware of the program or reluctant to consider establishing an apprenticeship opportunity. Wisconsin uses grants to local consortiums to incentivize employer participation.

The Committee recognizes the need to establish a financial incentive for employers and supports a financial incentive for each youth apprentice they hire. Such an incentive will demonstrate Maryland's commitment to youth apprenticeship opportunities and open the door to begin the discussion with a prospective employer that may have otherwise been reluctant to consider establishing a youth apprenticeship opportunity.

PART 7: CONCLUSION

Youth apprenticeship programs invest in the jobseeker, the businesses that employ them, and the State's workforce system. By leveraging current resources and adding other necessary components that the Committee plans to research in 2016, Maryland can better address its current and future workforce needs. The Committee looks forward to reporting on its work as Maryland moves closer to a robust youth apprenticeship system.

APPENDIX A - CAREER TECHNOLOGY EDUCATION CLUSTERS BY COUNTY

ALLEGANY	ANNE ARUNDEL
Arts, Media, and Communication Business Management and Finance Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies
BALTIMORE	**BALTIMORE CITY**
Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies
CALVERT	**CAROLINE**
Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Manufacturing, Engineering and Technology Transportation Technologies

CARROLL	CECIL
Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies
CHARLES	**DORCHESTER**
Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies
FREDERICK	**GARRETT**
Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Business Management and Finance Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies

HARFORD	HOWARD
Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies
KENT	**MONTGOMERY**
Arts, Media, and Communication Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies
PRINCE GEORGE'S	**QUEEN ANNE'S**
Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Manufacturing, Engineering and Technology Transportation Technologies

SAINT MARY'S	SOMERSET
Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Construction and Development Consumer Services, Hospitality and Tourism Health and Biosciences Human Resource Services Information Technology Transportation Technologies
TALBOT	**WASHINGTON**
Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Career Research and Development Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies
WICOMICO	**WORCESTER**
Business Management and Finance Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies	Arts, Media, and Communication Business Management and Finance Construction and Development Consumer Services, Hospitality and Tourism Environmental, Agricultural and Natural Resources Health and Biosciences Human Resource Services Information Technology Manufacturing, Engineering and Technology Transportation Technologies

APPENDIX B – U.S. APPRENTICESHIP MODELS

CASE STUDY 1: ARKANSAS

The Arkansas Youth Apprenticeship program was established with the "Arkansas Youth Apprenticeship/Work-Based Learning Act of 1991" to target non-college bound young people with additional opportunities to develop meaningful job skills. Programs are operated by a consortium of employers, employer associations, high schools, colleges, universities, local community government and service organizations to draw students into occupations that are needed in their region of the state.[24]

Program Overview

The Arkansas Youth Apprenticeship program enrolls students at the end of the tenth grade into a 3-4 year program of study that begins in the 11th grade and ends with the attainment of a postsecondary associate degree, certificate and/or completion of a traditional apprenticeship. To be eligible to participate in a Youth Apprenticeship program, a student must be between 16 and 21 years of age, enter the youth apprenticeship program before entering the 11th grade, have a three to five year career plan that includes high school, postsecondary education, and training, agree to a three to five year apprenticeship program, experience work in his or her chosen occupational cluster from a broad perspective down to a specific occupation, and obtain certification in his or her occupation and a postsecondary certificate, diploma, or degree and/or his or her journeyman license in addition to a high school diploma

A participating student may be classified in one of three categories: secondary, postsecondary, or completer.

- Secondary: A high school student age 16-21 who is participating in an approved YA/WBL program. The student must have a program of study signed by the instructor, student, and parent and a structured work-based learning plan signed by the instructor, employer, and student on file.
- Postsecondary: A student who has matriculated from the secondary program to a postsecondary school and/or traditional apprenticeship program that is an extension of the student's approved secondary YA/WBL program and has received articulated postsecondary course credit.
- Completer: A student who has completed an associate degree, or certificate, and/or traditional apprenticeship.

Much like YA programs in other states, each Youth Apprenticeship program in Arkansas has a strong employer commitment and involvement, provides high-quality supervised learning opportunities for students at the work site, integrates academic and vocational teaching and learning in the classroom and at work, fosters interactive, team-based learning in the classroom, uses competency-based measures for evaluating student progress, provides both academic and occupational credentials, provides access and support to nontraditional groups, and explicitly addresses issues presented by diversity in society and the workplace.

A structured plan for student learning is developed by the classroom instructor and workplace mentor and outlines the individual student's learning in the workplace with progressively higher levels of work experience accompanied by training and mentoring along with wage progression; identifies work placements by the employer that engage the student in all aspects of the industry through job rotations and in structured learning opportunities that meet program/career learning objectives; and clarifies the legal rights, responsibilities, and liabilities of the partners.

[24] Arkansas Department of Career Education, 2015

This program of study must combine the 11th and 12th grades of high school and a postsecondary associate degree, certificate, and/or traditional apprenticeship. The career focus must be designed around one of the U.S. Department of Education 16 career clusters, the KUDER assessments, and the Arkansas 'Smart Core.' Entry into the YA/WBL program requires this career focus program of study and must be signed by the employer, instructor, and the student before the student begins the apprentice position with the employer.

Consortium Overview

Consortiums provide consistency and ensure that all Youth Apprenticeship programs are in compliance with the Arkansas Youth Apprenticeship/Work-Based Learning (YA/WBL) Act of 1991. Consortium memberships include:

- One or more secondary schools offering career and technical education programs of study that incorporate integrated academic and technical teaching; AND
- One or more industry employers providing entry-level jobs (paid employment) with good opportunities for career advancement into high-skill, high-wage jobs and integrating academic and technical concepts into the job training; AND
- One or more postsecondary schools that offer associate degrees and or certificates (four-year postsecondary schools not offering one of the required programs do not qualify for membership); OR
- One or more traditional (adult) apprenticeship programs

Tax Credits

Two Arkansas laws provide tax incentives for a taxpayer who employs a youth apprentice in a program registered with the USDOL/Bureau of Apprenticeship and Training (USDOL/BAT) and/or in a program approved by the Arkansas Department of Workforce Education/Apprenticeship Office. These two laws are codified at A.C.A. 6-50-501 to 6-50-505 and A.C.A. 26-51-1601 to 26-51-1606. A credit in the amount of $2,000 or 10 percent of the wages earned by the youth apprentice, whichever is less, shall be allowed against the tax imposed by the Arkansas Income Tax act.

CASE STUDY 2: GEORGIA

Georgia's youth apprenticeship program started in 1992 with the stated goal of implementing comprehensive programs in all school systems by FY1996. Georgia Code #20-2-161.2 specified the goals and distinct elements for youth apprenticeship programs as they were to be implemented in the state:

1. Any 11th- or 12th-grade student or student aged 16 or over may enroll in a youth apprenticeship program which is offered at a public school.
2. The student is granted release time from the school to work as an apprentice for any business enterprise which is approved by the Department of Education as a qualified employer.
3. The student will receive secondary credit for the youth apprenticeship program.

The state established pilot programs in 24 school systems in FY 1994 and FY 1995, enrolling 358 students. By FY 2014, 6,840 students participated in the program which has grown statewide with over 2,000 businesses participating.

The program is administered through the Georgia Department of Education, working in partnership with the Department of Labor and the Department of Technical and Adult Education. The Departments developed guidelines and a framework for school systems to use in implementing the local programs, including:

(a) A partnership structure encompassing schools, postsecondary institutions, employers, labor organizations, and community representatives;
(b) The resulting award of a portable, industry-recognized skill certificate for participating students; and,
(c) Integration of work-based and school-based learning.

Funding and Staffing

According to Dwayne Hobbs, Program Manager, Program Delivery, Career, Technical and Agricultural Education in the Georgia Department of Education, the state legislature appropriates $3 million annually for youth apprenticeships through the Georgia Department of Education's grants budget to support 150 Youth Apprenticeship Coordinators around the state. The program is implemented by these coordinators who may serve one or more schools. In some cases, a Youth Apprenticeship Coordinator may serve multiple school systems. About 1/3 of the coordinators are full time. About 1/3 are half day and teach the other half. The remaining 1/3 are 2 periods a day and teach the remainder. In addition to a coordinator, each local school system earns a Full Time Employee (FTE), based on a funding formula per student enrolled in CTAE courses.

Unlike South Carolina and 10 other states, Georgia does not offer tax credits for hiring registered apprentices. However, according to Mr. Hobbs, a legislative committee is currently meeting to propose discounts in workers compensation policies for participating employers, as well as other tax incentives to support the apprenticeship program.

Program Overview

Georgia's youth apprenticeship program mirrors many federal and state-registered apprenticeship programs, but registration as an Apprenticeship Program with the state or federal government is not a requirement. Individual youth apprenticeship program development is at the discretion of each local school system and the youth apprenticeship program administrator. Each school system or apprenticeship consortium receiving grant funds for a youth apprenticeship program is responsible for the selection and hiring of a youth apprenticeship coordinator to develop a certified educational apprenticeship plan. Each certified plan shall include but is not limited to:

- A detailed training plan between employer and apprentice that identifies specific work tasks that will develop workplace competency;
- A minimum of 144 classroom hours of related academic instruction and training;
- A minimum of 750 hours of on-the-job learning;[25]
- A progressive wage schedule established by the participating employer;
- On-site evaluation of the pupil's performance;
- Training remediation as necessary at the school site;
- A broad range of skills, with a particular focus on manufacturing and engineering technology, administration and office technology, and health care;
- Development of marketing materials by the business, industry, and labor community in conjunction with the department of education to promote the awareness of apprenticeships for high school students and encourage recruitment; and
- Structural linkage between secondary and postsecondary components of the program leading to the awarding of a high school diploma and post-secondary certification of occupational skills. The post-secondary credential can be a technical certificate of credit at the technical college system, associate

[25] In 2013, the Georgia legislature passed HB 766, decreasing the required on the job learning hours from 2000 to 750.

degree, Bachelor of Science degree or a specific industry credential such as Automotive Service Excellence (ASE) certification.

In addition, students must be granted release time from the school to work as an apprentice for any business enterprise which is approved by the Department of Education as a qualified employer.

Comparison to other Work-Based Learning Programs

For comparison purposes, Georgia's other work-based learning programs have over 20,000 students participating. Mr. Hobbs reports that these work-based learning programs are much easier for students because the post-secondary component is not a requirement, and once they graduate they are done. Youth apprenticeship students must be tracked beyond graduation to completion of the requirements, which is very difficult for staff and has a low success rate.

Initial Student Enrollment Demographics and Career Choices

According to a 1997 University of Georgia study,[26] 359 students were enrolled in the initial 24 district pilot program, of which 56 dropped out before the first year completed. According to the study, the student population was composed of 130 males (43%) and 173 females (57%). Ethnicity of the student population was 233 Caucasians (77%), 58 African-Americans (19%), 5 Asian-Americans (2%), 5 Hispanic (2%), and 2 unspecified. Three (1%) of the students were classified as sophomores (10th grade), 110 (36%) as juniors (11th grade), and 190 (63%) were seniors (12th grade). No freshmen (9th grade) students were reported as enrolled in the youth apprenticeship programs.

Students enrolled in the initial pilot programs were also tracked by their occupational specialization in the five career areas identified by the state of Georgia:

- Technical and Engineering (n = 118)
- Health and Medical (n = 84)
- Business, Marketing and Information Management (n = 72)
- Human Services (n = 28)
- Environmental and Agriculture (n = 1).

Male students were predominantly enrolled and employed in the Technical and Engineering career cluster (n= 96) while females were primarily enrolled and employed in the Health and Medical (n = 76) and Business, Marketing and Information Management (n = 56) career clusters.

Work-Based Learning

Georgia's youth apprenticeship program places a heavy emphasis on work-based learning that provides paid work experience under the supervision of a mentor and includes a formalized sequence of training that leads to progressively higher skills and wages.

Under the Georgia plan, youth apprenticeship coordinators and employers determine the appropriate number of hours of work-based learning based on the requirements of the career focus of the program. The amount and intensity of workplace learning opportunities that students receive in the youth apprenticeship programs vary greatly. Experiences range from short-term, unpaid job shadowing to paid part-time employment. Students average as little as 10 hours per week at the work-based learning site to 30 hours per week.

[26] Smith, 1997

The employer must agree to remunerate youth apprenticeship students at the state minimum wage or higher wage as agreed upon by the employer and the youth apprenticeship coordinator. A progressive wage scale is encouraged and should be based on the student's performance and evaluations.

According to the 1997 University of Georgia study, youth apprenticeship coordinators have expressed concerns about obtaining commitments from employers for the development of long-term employment and progressive wage scales for youth apprenticeship students. Coordinators and students have experienced a differential in wage scales of youth apprenticeship students within the same business or industry, depending upon the tasks they are performing for the employer, leading to conflict and envy among students. This differential in wages has also caused some students to question the career field they have chosen or been placed, and several have asked for a change in positions so that a higher wage could be obtained.

Even though the Georgia legislation calls for a paid experience with a progressive wage scale for youth apprenticeship students, many programs (especially those serving students in the Health and Medical cluster) were having difficulty obtaining paid employment situations. Students in the Health and Medical cluster were more likely to be placed in a non-paid clinical experience but did receive a rotation through various units in medical facilities as part of the work-based component of the program.

Work-based Mentors

As with any work-based learning program, a supportive adult or mentor is critical to a student's success. In Georgia, mentor training varies, but the program reports mentors in several apprenticeship programs receive a minimum of a 4-hour training session to assist them in their role, and a few youth apprenticeship coordinators have developed handbooks describing the role of the mentor and expectations. In most instances, the employer selects the individual in the business or industry to serve as the mentor.

CASE STUDY 3: SOUTH CAROLINA

South Carolina's apprenticeship program is arguably one of the fastest growing programs in the country. Apprenticeship Carolina was launched in 2007 following a 2003 South Carolina Chamber of Commerce report that drew on best practices from other U.S. states and countries and recommended that the state create an apprenticeship program that, at its core, would be a partnership between South Carolina's businesses and its 16 technical colleges. All apprenticeships are registered through the USDOL and follow federal guidelines that require at least 2,000 hours of on the job learning and require 1-6 years to complete depending on the level of training that is commonly given in the occupation and the employee's needs.[27]

Currently, Apprenticeship Carolina operates in all 46 counties across the state, is housed in the SC Technical College System's Division of Economic Development, and seeks to expand junior and adult apprenticeship programs in manufacturing, technology, healthcare, and other industries.[28]

Since its beginning, the number of registered apprenticeship programs in the state has increased eightfold from 90 to 752. The number of apprentices has also increased eightfold from a mere 777 in 2007 to 13,300 now, and each month, the program adds approximately 120 new apprentices and registers one or more programs per week.[29] Youth Apprenticeships is a new and also fast-growing program in the state. Currently, there are 89 companies with a registered youth apprentice program, and 23 out of 46 counties have a registered YA program.[30]

[27] Parilla & Berube, 2015
[28] Ibid
[29] SC Technical College System, 2015
[30] Conference call with Brad Neese, 2015

Apprenticeship Consultants

Apprenticeship Carolina provides companies with free apprenticeship consultants to guide them through the registered apprenticeship development process, from initial information to full recognition in the national Registered Apprenticeship System. Consultants identify occupational training gaps, solicit proper supervisors for apprentices, link to providers for related technical instruction (often at one of the state's 16 technical colleges), and recruit a supervisor to maintain training standards. The program costs about $1 million a year, which is covered through state funding and includes an annual employer tax credit of $1,000 per apprentice.[31]

According to Brad Neese, Apprenticeship Carolina Program Director, "South Carolina's approach to working with organizations, however, is not a typical sales approach. Our consultants do not cold-call businesses. Instead, we have developed an extensive network of key partners who engage companies regularly: all 16 of our technical colleges, workforce investment boards, economic development organizations, and trade associations (among many others). Our approach has been to educate our partners, deploy them to listen to the needs of employers, and then offer apprenticeships as a viable solution for employers with workforce development and training needs."[32]

Much of Apprenticeship Carolina's success has come from broadening the scope of traditional apprenticeship trades such as construction, electrician and plumber as the ideal occupations for apprenticeship, to include nontraditional industry sectors like healthcare, information technology, tourism, and advanced manufacturing.

Sponsors

Any South Carolina employer, including a government agency, is eligible to sponsor an apprenticeship program and register it. Employers may sponsor a program individually, or they may collaborate with other employers with similar training needs. Programs also may be sponsored by a professional or trade association, a joint apprenticeship training committee, or a Small Business Development center on behalf of a consortium of employers.

Tax Credits

Eligible South Carolina businesses who sponsor a registered apprenticeship program can receive a $1,000 tax credit for each registered apprentice employed for at least seven months during each year of apprenticeship for up to four years. The tax credit is intended to offset the direct and indirect costs of establishing the registered apprenticeship program. Costs may include course design and development, instructional costs, training material and supplies, maintaining records and administering the program.

CASE STUDY 4: WISCONSIN

Wisconsin's Youth Apprenticeship Program began in 1991 through Act 39 as a School-to-Work Initiative, which led to Wisconsin being one of the original eight states to receive federal funding under the School-to-Work implementation grants of 1994.[33]
The program is based on the German apprenticeship model after local business, education, government and industry leaders traveled to the country to learn about their practices and provide high school youth with

[31] Parilla et al., 2015
[32] Parilla & Berube, 2015
[33] Scribner & Wakelyn, 1997

academic and occupational skills leading to both a high school diploma and a State Skill Certificate in a specific career cluster.[34]

Key elements of the Wisconsin Youth Apprenticeship program are:

- Industry-developed skill standards
- Exposure to multiple aspects of the industry
- Skilled mentors assigned to train the students
- Paid on-the-job work experience
- Related classroom instruction concurrent with work-based learning
- Program curriculum guidelines for all programs
- Performance evaluation of demonstrated competencies
- State-issued skill certificate

Students who successfully complete the program have the option of entering the workforce directly after high school, applying for a registered apprenticeship position or enrolling in a technical college or four-year university.

Program Overview

Wisconsin has two youth apprenticeship levels:

- Level One is a 1-year program during the junior or senior year of high school and requires a minimum of 450 hours of work-based training and 2 semesters (180 hours) of related classroom instruction. At least 250 hours of the required minimum work-based learning hours must take place during the weeks when related classes are being held so that classroom instruction can be integrated with worksite learning.

- Level Two is a 2-year program and requires participation in the junior and senior year of high school, 900 hours of work-based training, and 4 semesters (360 hours) of related classroom instruction. At least 500 hours of the required minimum work-based learning hours must take place during the weeks when related classes are being held so that classroom instruction can be integrated with worksite learning.

Related Instruction may be offered by:

- The employer;
- The school system;
- Another school system;
- Online;
- A Wisconsin Technical College;
- A Community College or University; or,
- Instructors qualified according to the Youth Apprenticeship Program Operations Manual.

Work-based learning in either the Level One or Level Two programs may begin as early as April first at the end of the sophomore year (as long as the student's age does not violate child labor law restrictions for the

[34] Ault et al. 2014

particular occupation). Work-based learning in Level One programs may begin as late as March 31 of the senior year, and for Level Two programs, as late as March 31 of the junior year.

Youth apprentices may remain in the program for Ninety (90) days after they graduate from high school, or after they complete a GED/HSED program. Students may be enrolled in the program longer than two years if they are still enrolled in high school or a GED/HSED program. Students enrolled in the high school/tech college model may remain in the program for up to 12 months after graduating high school, completing the second year of their Youth Apprenticeship program while enrolled in related instruction at a technical college.

Youth apprentices receive training and instruction in an occupational cluster within an industry. DWD staff work with statewide industry associations to identify appropriate industries for Youth Apprenticeships. Occupational areas are selected on the basis of their growth potential, skill levels of occupations within the industry, availability of entry level jobs with career growth potential, and interest in and commitment to hiring youth apprentices on the part of businesses within the industry.

Funding

On August 20, 2015, Governor Scott Walker and Department of Workforce Development (DWD) Secretary Reggie Newson announced $2.2 Million in Youth Apprenticeship grant awards to 32 regional consortiums to sustain and expand local, in-demand training opportunities for approximately 2,500 high school students across Wisconsin for the 2015-16 school year.[35]

Unlike Georgia, where the local school system runs the youth apprenticeship program, Regional Consortiums implement youth apprenticeship programs in Wisconsin. A Regional Consortium is a partnership of one or more school systems or any combination of one or more school systems, other public agencies, nonprofit organizations, one or more college(s) in the Wisconsin Technical College System, registered (adult) apprenticeship, organized labor, employers, other contributing individuals, or other persons who have agreed to be responsible for implementing and coordinating a local youth apprenticeship program.[36]

In order to be considered for funding, eligible applicants are required to:

- Limit state-funded cost per student to a maximum of $900 per youth apprentice (total grant amount awarded for this application is divided by the number of students to be enrolled);
- Provide at least 50% matching funds;
- Submit for a grant of no less than $22,500 and serving at least 25 students;
- Submit a signed Partnership Agreement for each partner;
- Submit a signed Affiliation Agreement for each affiliated school system;
- Demonstrate capacity to deliver the program in accordance with the DWD YA Program Operations Manual, and all requirements included in the RFP; and
- Designate a Consortium coordinator, selected and approved by the steering committee, who will ensure the execution of the following responsibilities:
    - Program Development and Management;
    - Recruitment and Marketing; and
    - Evaluation and Reporting.[37]

[35] Office of Governor Scott Walker, 2015
[36] Wisconsin Department of Workforce Development, 2015
[37] Ibid

Consortiums may operate the Youth Apprenticeship program with or without state funding; however, consortium partnerships must apply to and be approved by the Department of Workforce Development in order to operate an approved Wisconsin Youth Apprenticeship program.

Program Areas and Industry Developed Skill Standards

Wisconsin has 10 youth apprenticeship program areas students can choose from that provide uniform industry-wide foundational skills and industry-specific technical skills, including:

- Agriculture, Food & Natural Resources
- Architecture and Construction
- Arts, A/V Technology, and Communications
- Finance
- Health Science
- Hospitality, Lodging, and Tourism
- Information Technology
- Manufacturing
- Science, Technology, Engineering and Math (STEM)
- Transportation, Distribution & Logistics.

Each program area has an industry developed skills checklist that must be completed by the student and verified by the mentor.[38]

Hiring Youth Apprentices

Employers are responsible for interviewing and making final hiring decisions of youth apprentices. Businesses must follow normal hiring procedures with regard to non-discrimination and allowable interviewing procedures.

Responsibilities of School System Partners

School systems participating in a youth apprenticeship program are responsible for:

- Recruiting students for the youth apprenticeship program;
- Assessing interested students and determining the student's ability to successfully complete the youth apprenticeship curriculum;
- Assigning a school coordinator to oversee student enrollment in the program;
- Integrating the youth apprenticeship program into the student's overall educational program;
- Determining which related instruction options are available and appropriate for each youth apprentice;
- Developing an Academic and Career Plan (ACP) for each youth apprentice to ensure that all graduation requirements will be met;
- Issuing credit toward graduation for the youth apprenticeship program experience;

[38] For examples of skills checklists, visit https://dwd.wisconsin.gov/youthapprenticeship/skills_checklists.htm

- Signing the Education/Training Agreement for each student and complying with the conditions and requirements identified in the agreement;
- Defining "terms" of YA consortium affiliations;
- Arranging student schedules to allow for YA program participation.

Employer Responsibilities

Employers of youth apprentices are responsible for:

- Interviewing and hiring the youth apprentice(s) for a minimum of 900 hours (450 hours for Level One), for the length of the program. Youth apprentices may be shared and/or rotated among several participating businesses in order to learn all required competencies and/or provide summer employment, in which case the total number of hours per employer may be less.
- Paying the youth apprentices minimum wage or higher, as agreed upon by the Youth Apprenticeship consortium.
- Providing workers compensation coverage. Other benefits may be provided at the discretion of the employer.
- Instructing the youth apprentice in the required competencies provided for this program.
- Ensuring that any work performed in occupations declared hazardous shall be under the direct and close supervision of a qualified and experienced person and there is a schedule of organized and progressive work processes to be performed on the job. Student Learners may perform certain tasks that are otherwise declared hazardous provided the hazardous work is incidental to the training and is for intermittent and short periods of time.
- Ensuring that safety instructions will be provided.
- Assigning a mentor and skilled trainers to work with the youth apprentice throughout the course of the program. (One mentor can be assigned to more than one youth apprentice.)
- Allowing release time from work for the mentor(s) and trainers to attend relevant training or meetings.
- Signing and complying with the requirements in the Education/Training Agreement for each youth apprentice.
- Complying with all applicable state and federal child labor regulations.
- Employers are encouraged, but not required, to hire the youth apprentices upon completion of the program.

Mentor Qualifications and Responsibilities

Each youth apprentice must be assigned a skilled mentor at the workplace. The mentor may assign multiple "trainers" to instruct the youth apprentice while they rotate among the various workstations. One mentor may work with more than one youth apprentice in a company.

Qualifications for an effective mentor and/or trainer include:

- Experience working with adolescents, either on the job or through family or outside activities;
- Effective teaching/training skills with adults and/or youth;
- Highly skilled in the area in which the youth apprentices will be trained in the industry;
- Good communication skills in the workplace; and

- Knowledge of and commitment to the principles of apprenticeship and the Youth Apprenticeship program.

A Youth Apprenticeship mentor is responsible for:

- Developing a training plan for the youth apprentice which will ensure that the student has the opportunity to learn all the required work-based skills during the course of the program;
- Assigning the youth apprentice to appropriate trainers within the company;
- Evaluating the youth apprentice's progress on a regular basis and completing the student checklist documenting achievement of the required skills;
- Helping the student avoid problems and errors on work assignments;
- Providing support, encouragement, direction, and knowledge about the workplace culture;
- Seeking help from appropriate sources if personal problems are interfering with the student's performance;
- Document communications with the student's parents or guardians and school personnel at least three times during the school year to discuss the student's progress [Communicate on a regular basis with the student's parents or guardians and YA School-Based Coordinator to review progress of program growth and address program concerns];
- Communicating regularly with the school liaison, the Youth Apprenticeship coordinator and/or the instructor of the related class to discuss any problems and to ensure that work- 17 based learning experiences and classroom instruction are being integrated as much as possible; and
- Attending mentor training workshops and regularly scheduled mentor meetings as determined by the YA consortium

Department of Workforce Development Responsibilities

The Department of Workforce Development (DWD) is authorized to administer the Wisconsin Youth Apprenticeship (YA) Program under Wisconsin Statute 106.13. The DWD role is to oversee the Youth Apprenticeship program. Their responsibilities include but are not limited to:

- Establishing guidelines and standards for the program;
- Issuing requests for proposals to distribute funding;
- Approving applications from YA consortiums;
- Working with industry and labor leaders to develop new YA program areas;
- Approving the statewide program curricula;
- Monitoring YA programs;
- Providing technical assistance to YA consortiums; and,
- Issuing certificates to youth apprentices who successfully complete the program.

Youth Apprenticeship Consortium Responsibilities

Youth Apprenticeship programs must be administered by a YA consortium of partners representing Workforce Development Boards, school systems, technical colleges, employers, and organized labor. Parents of youth apprentices or other community representatives may also be included in the partnerships. Sometimes this is constituted as a "steering committee."

YA consortia may be organized and led by any one of the partners with an interest in developing a state-approved YA program. They must apply and be approved by the DWD to receive funding to operate Youth Apprenticeship programs and register youth apprentices.

The YA consortium of partners is responsible for the following:

- Establishing boundaries and/or governance structure for the program (e.g. part of a larger school-to-work partnership or operating independently);
- Selecting the program areas (e.g... Health Science, Manufacturing, etc.) and designing the YA program;
- Submitting applications for funding;
- Hiring and/or arranging for a Youth Apprenticeship consortium coordinator;
- Recruiting businesses to hire youth apprentices;
- Developing a marketing strategy to inform parents, students, employers and the community about the program;
- Developing recruitment and selection procedures for students applying for the program;
- Developing policies and procedures for the consortium's program;
- Monitoring the program to ensure compliance with state and school system requirements;
- Ensuring that school services (counseling, health, etc.) are accessible to youth apprentices;
- Developing linkages with other programs in the community as appropriate to assist with referrals and operation;
- Complying with the Youth Apprenticeship Program Assurances in the DWD approved application; and
- Arranging for fiscal management of grant funds.

APPENDIX C - FOREIGN APPRENTICESHIP MODELS

Abroad, apprenticeship also serves as an educational training model where apprentices not only acquire skills in an academic setting, but also learn in a practical work-based environment. Whereas the U.S.' success with apprenticeship has been mostly limited to adults in the trades, other countries have had great success with training both youth and adults through the apprenticeship model for decades.

Apprenticeship systems vary widely across countries, but in general, successful international models begin in late high school and continue for about three years, with students learning in a practical, work-based environment in addition to the traditional academic setting offered by publicly-funded career schools. In these international models, employers pay apprentices a wage, pay for mentors, and only receive partial compensation by the government on their investments.[39] The following section presents an overview of four countries' models –Switzerland, Germany, Canada, and the United Kingdom—to provide examples on specific countries outside the U.S. where apprenticeship is successfully used.

It is important to recognize that any given country's apprenticeship model is deeply embedded in economic, political, historical and social factors specific to that nation's context and need. While Maryland can glean important information from studying international trends, best practices, and lessons learned, it is important to recognize that these models cannot be easily transplanted into a different institutional context without careful consideration of the State's local setting.

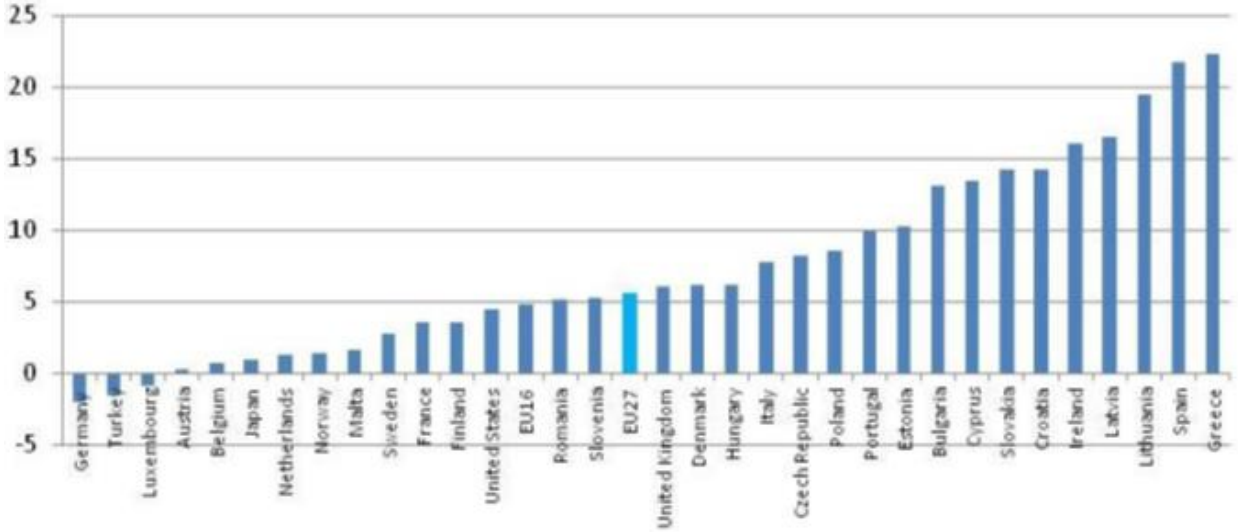
[39] Lerman & Packer, 2015

Learning from Longstanding Apprenticeship Systems: The Swiss and German Models

Switzerland and Germany's models of apprenticeship, which encompass 55 to 70 percent of the countries' youth,[40] offer Maryland strong evidence in support of its own youth apprenticeship initiative. Unlike most countries' apprenticeship programs, which begin after high school, apprenticeships and high schools are well-aligned and interlinked in both Germany and Switzerland.[41]

Empirical evidence supports the establishment of apprenticeship opportunities for young people. Whereas countries with less aligned school-based education and training systems experienced significant increases in youth unemployment during the Great Recession, countries with robust apprenticeship programs that involved youth did not.[42]

Figure 1. Increase in youth unemployment rates in percentage points, 2008 to 2011



Source: Eurostat and the OECD

Further, the unemployment rate for 15-24 year olds in Germany and Switzerland is below 9 percent, well below the 24 percent rate in France, the 35 percent in Italy, and the 18 percent in Finland.[43] Because youth unemployment rates tend to be lowest where apprenticeships are most common, it suggests that strong apprenticeship systems support the rapid integration of youth into the workforce.[44]

CASE STUDY 1: SWITZERLAND

In Switzerland, where 70 percent of youth enter apprenticeships, they use a dual system where practical on-the-job learning occurs three to four days a week, and is then supplemented by one to two days of theoretical classroom instruction. Once a youth has reached age 14 and has completed lower-secondary school, he or she can either apply for an apprenticeship at a training company or enroll in a full-time apprenticeship.[45]

Compared to fellow countries with robust apprenticeship systems, the Swiss system is known by experts to be especially effective at easing the path from apprenticeship training to higher education. The country offers a seamless pathway between completing an apprenticeship and entering university. This demonstrates that

[40] Lerman, 2014
[41] Ibid
[42] Evans & Bosch, 2012
[43] Lerman, 2014
[44] Evans & Bosch, 2012
[45] Swiss Education System

apprenticeship does not need to be "the other four year education," as it is sometimes described in the U.S. Depending on industry needs, university education may be a part of the broader apprenticeship system. While only a modest percentage of current Swiss apprentices enter both university and apprenticeship, the fact that the Swiss government offers the opportunity is a strong indicator that apprenticeship can be a pathway to higher education.[46]

Switzerland currently offers its citizens about 250 apprenticeship occupations,[47] and apprenticeship occupations extend far beyond the traditional construction-related trades. Common apprenticeships tracts include information technology specialists, commercial employees, pharmacy assistants, and doctors' assistants.

The Federal Office for Professional Education and Training, a Swiss governmental entity, works with local governments, businesses, trade associations, and unions to frame standards and oversee apprenticeships. Professional organizations also play a key role, as they develop qualifications, apprentice exams, and encourage businesses to participate in the apprenticeship system.[48]

CASE STUDY 2: GERMANY

Apprenticeships account for nearly 4 percent of the total labor force in Germany, compared to only about 0.3 percent in the United States. Germany has over 300 apprenticeship occupations, spanning well beyond the confines of the traditional trades. With Apprenticeship Maryland's focus on STEM (science, technology, engineering and math) and manufacturing careers, it is worth noting that Germany offers a large variety of STEM and manufacturing apprenticeship occupations, including: information electronics technician, information technology (IT) officer, IT systems electronics technician, IT system support services, mathematical-technical software developer, systems informatics technician, dental technician, health services officer, hearing aid audiologist, medical assistant, optician, orthopedic technician, pharmaceutical technician, precision optician, chemical laboratory technician, chemical production specialist, chemical technician, electronics technician – aerospace systems, electronics technician- devices and systems, electronics technician-industrial engineering, engineering draftsman/-woman, and more. Also of note, apprentices often learn skills that may be transferable to related occupations.[49] For example, apprentices in industrial management learn accounting, procurement, production planning, staffing and logistics.[50]

In the German model, apprenticeships are highly valued by both employers and good school performers. German employers are known for feeling a social obligation to participate in apprenticeship programs, often making slots available to all interested and capable youth. Therefore, many talented youth are attracted to apprenticeship for its promising opportunities, understanding that employers expect some apprentices to ultimately progress to senior-level positions. At the same time, the system also ensures entry mechanisms, like pre-apprenticeship, for weaker school performers who may come from disadvantaged backgrounds. This ensures that apprenticeships, with their strong pathways towards upward mobility, are competitive but fair, and offer employers high quality, primed employees.[51]

To ensure that trainings are job-driven and meet employers' needs, schools have strong ties to both employers and higher education and training systems in the German model.[52] Occupational standards are

[46] Lerman & Packer, 2015
[47] Hoeckel, Field & Grubb, 2009
[48] Lerman, 2014
[49] American Institute for Innovative Apprenticeship
[50] Lerman, 2014
[51] Ibed
[52] Evans & Bosch. 2012

determined by governments, employers, and employee representatives.[53] Like in Switzerland, German chambers of commerce serve in advisory roles for participating companies, register apprenticeship contracts, examine the suitability of businesses and trainers, and set up apprentice final exams.[54]

Learning from Recent Expansion Efforts: Canada & the United Kingdom

While apprenticeship programs have long existed in Canada and the United Kingdom, robust expansion and reinvigoration efforts have successfully taken place in recent years that provide worthwhile insight for Maryland. In Canada, expansion efforts resulted in the doubling of the number of apprentices since 2002, reaching about 426,000 in 2011.[55] In the UK, where expansion efforts have focused on marketing and modest financial incentives, apprenticeship has grown dramatically, from about 150,000 in 2007 to over 800,000 today.[56]

In contrast to the Swiss and German approaches, Canada primarily gears its apprenticeship expansion efforts towards adults. Only about 7 percent of Canadian apprentices are under age 20 and more than 40 percent are 30 and older.[57] While the UK markets apprenticeship to its youth, in 2013-2014, those under age 19 only accounted for 20 percent of the apprentice population.[58] Both Canada and the UK have begun to scale up youth apprenticeship opportunities, recognizing that youth apprenticeships increase employment opportunities and skills, like responsibility, punctuality and teamwork. These countries, like Germany and Switzerland, offer Maryland important lessons learned.

CASE STUDY 3: CANADA

Apprentices in Canada account for about 2.4 percent of total employment and more than 20 percent of post-secondary education.[59] Market mechanisms determine the supply of apprentices and, as evidenced in other countries, participation in an apprenticeship program has a substantial, positive impact on employment outcomes.[60] Due to positive outcomes, Canada continues to take steps towards expanding its apprenticeship system.

Though apprenticeship training is more widely accessed in Canada than the US, the programs offered remain mostly limited to adults in the trades. Nearly half of all Canadian apprentices are in one of four occupations: automotive service technician, carpenter, electrician, and plumber (including pipefitter and steamfitter).[61] Still, through more recent expansion efforts, apprentice occupations have grown to include technology intensive sectors, such as aerospace and film.[62]
For the trades in Canada, apprenticeship occupation-specific standards and assessments are developed by the Interprovincial Standards Red Seal Program.[63] In addition to occupational skills, Red Seal standards incorporate essential skills like reading, writing, numeracy, oral communication, reasoning, and digital

[53] Hoeckel & Schwartz, 2010
[54] Lerman, 2014
[55] Ibid
[56] Lerman & Packer, 2015
[57] Ibid
[58] Lerman, 2014
[59] Evans & Bosch, 2012
[60] Lerman, 2014
[61] Miller, 2013
[62] Ibid
[63] Ibid

technology.[64] Standards and competencies are developed through a National Occupational Analysis and are then validated at the provincial level. Once an apprentice has passed a Red Seal exam, the apprentice earns a certificate that is transferable, for it is recognized across the country. Consistent standards within programs increase employers' confidence in the apprenticeship system. Apart from federal oversight, provinces are mainly responsible for administering and funding apprenticeships, and each province has the flexibility to determine apprenticeship occupations.[65]

Recognizing that Canada, like the US, has not done the best job of integrating apprenticeship into the youth education system, several provinces have recently established apprenticeship programs that begin for high school students. In Manitoba's High School Apprenticeship Program (HSAP), students in grade 10, 11, or 12 that are at least 16 years old may attend high school full-time while training on-the-job part time. HSAP participating employers receive a tax credit for the wages they pay apprentices, to a maximum of $2,000 per year per apprentice.[66] If an apprentice chooses to continue the program after high school graduation, then he or she is entitled to tuition assistance to help with additional education costs. Currently, HSAP has over 1100 participants in over 40 apprenticeship occupations, including manufacturing, transportation, construction, and services.[67]

CASE STUDY 4: UNITED KINGDOM

In some ways, Britain's history with apprenticeship parallels Maryland's. Like Maryland, Britain had a long history of apprenticeship with adults in the trades. Apprenticeship was seen as the "gold standard" for vocational training and, by the 1960s, Britain had about 240,000 apprentices. This number dwindled to 53,000 by 1990, likely due to increases in college participation, decreased public investment, and declines in apprenticeship industries, like manufacturing.[68]

To "identify the UK's optimal skills for 2020 to maximize economic growth, productivity, and social justice,"[69] the British government commissioned the 2006 Leitch Review of Skills. In the Leitch Review, similarly to Maryland's own influential report by the Augustine Commission, the country was called to increase investments in the apprenticeship system. Further, it suggested that apprenticeship efforts should focus on youth, stating that, "the Government should build on the success of the Apprenticeship route, expanding it to become a pathway which is open to every suitably qualified 16-19 year old."[70] Taking the recommendation seriously, the UK dramatically ramped up its apprenticeship efforts, from about 150,000 in 2007 to over 800,000 today.[71] Like South Carolina, the UK used marketing and modest financial incentives to increase the supply of apprenticeship slots with employers.[72]

In the UK, apprenticeships are designed to lead to nationally recognized credentials with standards that meet employers' specific needs. Sector Skills Councils design apprenticeships, working closely with industry representatives to ensure training is relevant. Generally, UK apprenticeships have four key elements: (1) theoretical knowledge; (2) on-the-job training; (3) transferable skills, including essential skills like literacy and numeracy; and, (4) employment rights and responsibilities training. Apprenticeships may take anywhere from one to four years to complete, depending on the sector, job role, level of apprenticeship, and the apprentice's abilities and aptitude.

[64] Lerman, 2014
[65] Ibid
[66] Ibid
[67] Lerman & Packer, 2015
[68] Evans & Bosch, 2012
[69] UK HM Treasury, 2006
[70] Ibid
[71] Lerman & Packer, 2015
[72] Lerman, 2014

The city of London launched the London Apprenticeship Campaign in 2010 to boost the number of apprentices, as part of the ongoing policy focus of using apprenticeship to close the skills gap. The campaign focused on establishing apprenticeship frameworks, outside of the traditional trade's models, in high-growth areas like finance. The campaign was hugely successful and from 2009-2010 to 2010-2011, the number of apprentices doubled to reach over 40,000 in London, alone.[73]

A governance structure, the London Skills and Employment Board, was established to build and oversee London's apprenticeship efforts with a focus on four key elements: (1) public sector leadership; (2) public procurement; (3) employer engagement; and, (4) boosting quality. Focusing in this way allowed London to successfully engage high-level stakeholders, like the mayor, in addition to leading employers and key agency officials, including labor and education. Initially, the main focus was to persuade employers to train using the apprenticeship model. Over time, however, the London group has expanded its focus to also include marketing efforts to convince good school performers to take the apprenticeship route.[74]

Conclusion

The German and Swiss apprenticeship systems have long been regarded as strong examples of apprenticeship models from which countries aiming to reinvigorate and expand apprenticeship, like the U.S., can learn. Canada and the United Kingdom, having recently reinvigorated interest in apprenticeship among employers and youth, both offer important insight into how Maryland can succeed.

[73] Evans & Bosch. 2012

[74] Ibid

REFERENCES

- Achieve (July 2015), "Rising to the Challenge: Views on High School Graduates' Preparedness for College," accessed at: http://www.achieve.org/files/Survey2_Infographics_4.pdf.
- American Institute for Innovative Apprenticeship, "Occupational Standards," accessed in 2015 at: http://innovativeapprenticeship.org/occupational-standards/.
- Arkansas Department of Career Education (2015), "Youth Apprenticeship," accessed at: http://ace.arkansas.gov/cte/specialPrograms/apprenticeshipAppliedSciences/youthApprenticeship/Pages/default.aspx
- Ault, Mindy, Rachel Nusbaum, Kaitlyn Richardson, Matthew Puckett, & Alaide Vilchis Ibarra (2014), "District of Columbia Public School System: Youth Apprenticeship Program," accessed at: http://innovativeapprenticeship.org/wp-content/uploads/2013/02/AIIA-Final-Report1.pdf
- Carneville, Anthony P., Nicole Smith, and Jeff Stohl of Georgetown Public Policy Institute (2013), "Recovery: Job Growth and Education Requirements Through 2020," accessed at: https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.FR_.Web_.pdf.
- Council of Chief State School Officials (November 2014), "Opportunities and Options: Making Career Preparation Work for Students," accessed at http://www.ccsso.org/documents/2014/EmbargoedCCSSOTaskForceonCareerReadiness120114.pdf.
- CVS Health (January 20, 2015), "State of the Union Highlights Apprenticeship Program," accessed at: https://www.cvshealth.com/newsroom/state-of-union-apprenticeship-program.
- Evans, Stephen & Gerhard Bosch of the OECD LEED Programme: Local Skills Strategies (2012), "Apprenticeships in London: Boosting Skills in a City Economy – With Comment on Lessons from Germany," accessed at: http://www.oecd.org/cfe/leed/london_final.pdf.
- Hoeckel, Kathrin, Simon Field & Norton Grubb (April 2009), "A Learning for Jobs Review of Switzerland (OECD Reviews of Vocational Education and Training)," accessed at: http://www.sbfi.admin.ch/themen/01369/01723/01725/index.html?lang=en&download=NHzLpZeg7t,lnp6I0NTU042l2Z6ln1ad1IZn4Z2qZpnO2Yuq2Z6gpJCDeH54fWym162epYbg2c_JjKbNoKSn6A--.
- Hoeckel, Kathrin & Robert Schwartz (September 2010), "A Learning for Jobs Review of Germany (OECD Reviews of Vocational Education and Training)," accessed at: http://www.oecd.org/germany/45668296.pdf.
- Lerman, Dr. Robert and Dr. Arnold Packer (April 2015), "Youth Apprenticeships: A Hopeful Approach for Improving Outcomes for Baltimore Youth," accessed at: http://www.urban.org/research/publication/youth-apprenticeship-hopeful-approach-improving-outcomes-baltimore-youth/view/full_report.
- Lerman, Robert I. (April 2014), "Expanding Apprenticeship Training in Canada: Perspectives from International Experience," accessed at: http://www.ceocouncil.ca/wp-content/uploads/2014/04/Lerman-Expanding-apprenticeship-training-in-Canada-April-2014.pdf.
- Maryland Labor & Employment Article Sections 11-405(b) and 11-603 (2014), "Apprenticeship Pilot Program – Apprenticeship Maryland," accessed at: http://mgaleg.maryland.gov/2015RS/chapters_noln/Ch_140_hb0942E.pdf.
- Maryland Task Force to Study Economic Development and Apprenticeships (February 2014), "Final Report: Task Force to Study Economic Development and Apprenticeships," accessed at: http://msa.maryland.gov/megafile/msa/speccol/sc5300/sc5339/000113/018000/018962/unrestricted/20140038e.pdf.
- Miller, Linda (2013), "Canada" and "England" in "Possible futures for the Indian Apprenticeships system' project. Interim Report to the World Bank. Edited by Erika Smith and Ros Brennan Kemmis. University of Ballarat, Australia.
- Office of Governor Scott Walker (August 20, 2015), "Press Release – Governor Scott Walker, DWD Secretary Newson Announce $2.2 Million in Youth Apprenticeship Grant Awards," accessed at: http://walker.wi.gov/newsroom/press-release/governor-scott-walker-dwd-secretary-newson-announce-22-million-youth
- O'Leary, Patrick of the U.S. Department of Labor (June 4, 2014), "UPS Partnership with Registered Apprenticeship Programs Offers Employees Quality Assurance," accessed at: http://blog.dol.gov/2014/06/04/ups-partnership-with-registered-apprenticeship-program-offers-employees-quality-assurance/.
- Parilla, Joseph & Alan Berube (April 7, 2015), "Building one of America's fastest-growing apprenticeship programs: A Q&A with Brad Neese of Apprenticeship Carolina," accessed at: http://www.brookings.edu/blogs/the-avenue/posts/2015/04/07-apprenticeship-carolina-parilla-berube
- Parilla, Joseph, Jesus Leal Trujillo, and Alan Berube (2015), "Skills and Innovation Strategies to Strengthen U.S. Manufacturing: Lessons from Germany," accessed at: http://www.brookings.edu/~/media/research/files/reports/2015/02/25-germany/lessonsfromgermany.pdf
- Peter D. Hart Research/Public Opinion Strategies (2005), "Rising to the Challenge: Are High School Graduates Prepared for College and Work?," accessed at: http://www.achieve.org/files/pollreport_0.pdf.

- Schwartz, Nelson D. (July 13, 2015), "A New Look at Apprenticeships as a Path to the Middle Class," accessed at: http://www.nytimes.com/2015/07/14/business/economy/a-new-look-at-apprenticeships-as-a-path-to-the-middle-class.html?_r=1;
- Scribner, Jay Paredes; Wakelyn, David (1997) Youth Apprenticeship Experiences in Wisconsin: A Stakeholder-Based Evaluation. Access at http://files.eric.ed.gov/fulltext/ED422505.pdf
- Smith, Clifton L. (1997), "Initial Analysis of Youth Apprenticeship Programs in Georgia, accessed at: http://scholar.lib.vt.edu/ejournals/JVTE/v14n1/JVTE-2.html
- South Carolina Technical College System, Apprenticeship Carolina (2015), "By the Numbers," accessed at: http://www.apprenticeshipcarolina.com/by-the-numbers.html
- Swiss Education System, "Vocational Education and Training," accessed at: https://swisseducation.educa.ch/en/vocational-education-and-training.
- United Kingdom HM Treasury (2006), "Leitch Review of Skills: Prosperity for all in the global economy," accessed at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/354161/Prosperity_for_all_in_the_global_economy_-_summary.pdf.
- United States Chamber of Commerce Foundation's Center for Education and Workforce (2015), "Making Youth Employment Work: Essential Elements for a Successful Strategy," accessed at: http://www.uschamberfoundation.org/sites/default/files/media-uploads/021927_Youth_Employment_FIN.pdf.
- United States Chamber of Commerce Foundation's Center for Education and Workforce (2014), "Managing the Talent Pipeline: A New Approach to Closing the Skills Gap," accessed at: http://www.uschamberfoundation.org/sites/default/files/Managing%20the%20Talent%20Pipeline.pdf.
- Wisconsin Department of Workforce Development (January 2015), "Wisconsin Youth Apprenticeship Program Operations Manual, accessed at: http://dwd.wisconsin.gov/dwd/publications/dws/youthapprenticeship/detw_9654_p.pdf