

Strengthening Career and Technical Education and 21st Century Skills in Philadelphia

Executive Summary

Prepared by the Philadelphia Youth Network

Funded by the John S. and James L. Knight Foundation

OVERVIEW

In Spring 2007, the John S. and James L. Knight Foundation awarded funds to the Philadelphia Youth Network (PYN) to undertake an analysis of Career and Technical Education (CTE) in Philadelphia, and to make recommendations on how CTE and other forms of career-connected education could better align with high-wage/high-demand jobs in the regional economy. This analysis was performed with guidance from the Philadelphia Youth Council's¹ Workforce Preparation subcommittee, and with the support of the School Reform Commission and the School District of Philadelphia. PYN worked with the Philadelphia Workforce Investment Board (PWIB) to perform extensive analyses of local, regional and state-level labor market data and how they were reflected in CTE offerings; scanned the literature to learn about effective practices in CTE and other forms of career-connected education; and convened employers, school representatives and government officials from the City and the Commonwealth of Pennsylvania to review the data, draw conclusions and formulate recommendations. The report provides an

¹ The Philadelphia Youth Council, a statutorily-mandated subgroup of the Philadelphia Workforce Investment Board, is charged with recommending policies, funding and best practices that promote youth workforce development. As of December 2008, the Youth Council is now known as the Philadelphia Council for College and Career Success.

overview of that process, reviews relevant research, and presents a series of findings, analyses and recommendations designed to improve CTE and career-connected education in the School District of Philadelphia.

The scope of this report relates predominately to the eight CTE High Schools. Some additional analysis is presented as it relates to the career-connected offerings outside of the eight CTE schools. However, a complete analysis and comprehensive recommendations related to the entire system of career connected educational offerings is beyond the scope of this paper

METHODOLOGY

Interested in helping Greater Philadelphia leaders more fully understand and improve the relationships between CTE programming and regional employer needs, in Spring 2007 the John S. and James L. Knight Foundation awarded funding to the Philadelphia Youth Network to lead a planning process that would accomplish these goals. To ensure that this planning process was linked to related work in the City, PYN, which also staffs the Philadelphia Youth Council, recommended that this work be undertaken under the auspices of the Youth Council's Workforce Preparation subcommittee. As a result, the Council charged the subcommittee with facilitating the planning process to review, expand and finance Career

and Technical Education and career-connected education in the School District of Philadelphia.

The subcommittee, which is comprised of representatives from the School District, business, the workforce system, the city and state, teachers, parents, and Philadelphia CTE students, met on a monthly basis as a collaborative workteam to inform and direct the planning grant, with PYN serving as managing partner of the work. The subcommittee reviewed all available research regarding effective practices in CTE and career-connected education; arranged interviews and focus groups with a wide range of stakeholders; and collected and analyzed state, regional and local data to illuminate the relationships among CTE programs and regional economic needs.

Key participants in the preparation of this report include the PA Department of Education's Bureau of Career and Technical Education (BCTE), the Philadelphia Federation of Teachers (PFT), The School District of Philadelphia, Philadelphia Academies, Inc.(PAI), business leaders, students and parents, and the Philadelphia Workforce Investment Board.

PHILADELPHIA'S CTE SYSTEM

In January 2008, a total of 7,418 students were enrolled in the School District's eight CTE schools. The eight CTE schools include:

- Edward Bok High School
- Communications Technology High School
- Murrell Dobbins High School
- Thomas A. Edison High School
- Jules E. Mastbaum High School
- A. Phillip Randolph Career Academy
- Walter B. Saul High School
- Swenson Arts and Technology High School

The CTE schools are spread across the city and each is assigned to one of the District's geographically-determined regions. Of the total number of CTE students across the city, 4,351 students in grades 10 to 12 were enrolled in 34 Programs of Study. Programs of Study are course sequences that meet state content and hour requirements and are eligible for state and federal funding. Philadelphia's CTE Programs of Study offer training for 128 related occupations with successful completers having access to 45 certification opportunities, 34 of which are identified by the Commonwealth as industry-recognized.

The chart on pages 11 and 12 summarizes the menu of offerings in CTE schools in Philadelphia.

FINDINGS AND RECOMMENDATIONS

As a result of this study, findings and subsequent recommendations centered on the following eight themes, which are explained in the next section:

1. Focus, Quality and Access of CTE Programs
2. Academic Rigor and 21st Century Skills
3. Alignment of CTE Coursework and Regional Economic Development Need
4. Industry Support and City-wide Coordination
5. Post-Secondary Alignment
6. Administrative and Structural Supports to Meet the Unique Needs of CTE Schools
7. CTE School-based Leadership and Teaching
8. Funds to Support CTE Schools and Programs

SUMMARY OF THEMES, FINDINGS AND RECOMMENDATIONS

I. Focus, Quality and Access of CTE Programs.

Findings:

- Most state-approved CTE course sequences – known as Programs of Study – are offered at eight full-time CTE high schools.
- Many Programs of Study and their related occupations are offered at more than one CTE high school across the City, with quality and resources differing by school.
- CTE high schools are highly competitive and admit only about 25% of applicants.
- Other less-intensive forms of CTE also exist throughout the School District, including Programs of Concentration and individual courses taken as electives.

Recommendations:

- **Transform the School District's CTE high schools into Centers of Excellence** by consolidating programs of study in key industry areas effectively concentrating resources and expertise. Centers of Excellence should focus on high-wage/high-demand careers in the Greater Philadelphia region and offer exposure to a range of occupations within an industry area
- **Develop and provide a common core of relevant instruction and experiences** available to students in all CTE high schools.
- **Establish an alternative admissions policy that widens focus to areas beyond traditional academic criteria** for CTE high schools to ensure that capable students are not screened out based solely on grades.
- **Ensure the quality of Programs of Concentration**, monitoring their effectiveness and providing them with the support necessary for success.

2. Academic Rigor and 21st Century Skills

Findings:

- Students in CTE high schools have performed better over time on state assessments and graduate at higher rates than students in non-CTE (non-magnet) schools. While national data indicates that CTE pedagogy correlates with student performance, research is needed to determine whether the stronger performance in Philadelphia results from CTE schools' selectivity or other factors.
- For the most part, while they outperform their non-CTE peers in the City, Philadelphia CTE students and CTE high schools perform below statewide averages on assessments of reading and mathematics. In fact, four CTE high schools are in "Corrective Action 2" status.
- Effective in the 2009-10 school year, CTE students will have to accumulate 26.5 credits to graduate, compared to 23.5 for non-CTE students, in order to accommodate academic and CTE course requirements.

- Work-based learning and other career-connected opportunities that promote academic achievement and 21st century skills-acquisition, have a number of benefits for students, particularly for those at risk of dropping out of school.

Recommendations:

- **Continue to promote rigorous academics** for all students participating in CTE.
- **Blend coursework and instruction** in ways that enable students to meet both academic and occupational requirements.
- **Expand the use of contextual learning strategies** to convey 21st Century Skills for both CTE and non-CTE students.
- **Expand work-based learning and career-connected learning opportunities** as vehicles to promote high school graduation, particularly for students at-risk of dropping out.

3. Alignment of CTE Coursework and Regional Economic Development Needs

Findings:

- For CTE offerings designed to lead to employment opportunities immediately after high school, those jobs are typically characterized by low wages and little chance for career advancement, while those programs that align well with high-wage/high-demand occupations typically require significant education or training beyond the secondary level.
- According to the Philadelphia Workforce Investment Board (WIB), two-thirds of CTE students will need postsecondary credentials for career success. These and other credentials that are integral to career success, such as industry certification, can potentially be obtained while still in high school.
- The WIB is positioned to make annual labor market projections that can help to guide and shape CTE occupational training programs.
- High quality assessment tools would likely be effective in the process of aligning programs and curricula to high-wage/high-demand occupations.

Recommendations:

- **Develop and share workforce data on emerging occupations** with the Philadelphia Workforce Investment Board so that CTE programs can anticipate and prepare students for careers of the future.
- **Better align CTE Programs of Study** with Commonwealth-established High Priority Occupations and other high-wage/high-demand careers in the region.
- **Plan collaboratively across sectors** to ensure tight alignment of CTE programming with regional workforce and economic development needs.

4. Industry Support and City-wide Coordination

Findings:

- The current structures to provide industry guidance to programs are duplicative in certain schools and industry areas.
- Stronger connections are needed between the current District structures and broader cross-sector city-wide efforts.
- There is an opportunity to provide more consistent, coordinated and intensive industry input and to better coordinate efforts across the District and with other stakeholders by connecting to existing or emerging citywide efforts.
- Currently there are two Perkins Participatory Planning Committees in the city; one serves the School District of Philadelphia and one serves Community College of Philadelphia but many of the same organizations are represented on both committees.

Recommendations:

- **Develop a unified set of Industry Advisory Boards** to support CTE occupational clusters and CTE teachers to ensure close connections to the WIB and Youth Council (i.e., Philadelphia Council for College and Career Success).
- **Establish a citywide Local Advisory Committee** and align it with the Council for College and Career Success, to ensure citywide coordination of CTE and related occupational programming.
- **Explore combining existing Perkins Participatory Planning Committees** into one committee with shared oversight for both the District's and Community College's Perkins funds.

5. Post-Secondary Alignment

Findings:

- According to the Philadelphia WIB, the economic prospects for Philadelphia residents without some postsecondary education are “grim.”
- Philadelphia CTE students attend postsecondary education at higher rates than students in the comprehensive high schools, but at lower rates than students in other special admission high schools. Only one-third of the CTE students interviewed believe that they need postsecondary education for career success.
- CTE students are significantly under-represented among Philadelphia students participating in Commonwealth-funded dual enrollment programs.
- Only about one-third of Tech Prep students enroll in the Community College of Philadelphia following graduation.

- The number of students participating in Tech Prep is small as compared to the total number of students enrolled in Programs of Study connected to Tech Prep.

Recommendations:

- **Design all CTE schools and course sequences to promote post-secondary connections**, and ensure that they are clearly understood by students and parents.
- **Promote participation in Dual Enrollment for CTE students**, taking maximum advantage of the Commonwealth's unique funding support.
- **Create a CTE, STEM* or Life Sciences-focused Early College High School** to enhance post-secondary access for students and to increase skills for CTE school staff.
- **Increase college preparation programs and services for all CTE students**; begin by significantly increasing the number of students served by Tech Prep and by including other postsecondary preparation service programs in CTE schools.
- **Modify and strengthen Tech Prep programming**, increasing student access to post-secondary education through postsecondary campus-based programming, dual enrollment, and articulated secondary-postsecondary curricula.

6. Administrative and Structural Supports to Meet the Unique Needs of CTE Schools.

Findings:

- The lack of centralized and coordinated administrative support for CTE schools creates difficulty for leadership at the school and central levels, including
 - Procuring industry-specific equipment in a timely manner,
 - Lack of resources and competition for forming industry partnerships,
 - Professional development offerings that do not address the needs of CTE teachers and CTE principals,
 - Inconsistent and under-credentialing of staff across sites,
 - Staffing structures that do not maximize the collective efforts of school district staff and partners, and
 - Hiring practices that cause the District to lose industry teacher candidates needed to fill critical vacancies.

* Science, Technology, Engineering and Math

- Inaccurate and incomplete data collection leads to a lack of transparency and the underutilization of data for analysis and planning.
- Edison High School’s hybrid structure makes data collection and analysis difficult and continues to pose administrative challenges.

Recommendations:

- **Create a CTE “mini-region” or “hub” for CTE schools** that will focus squarely on the unique needs and requirements of programs, students and CTE schools and will have line authority over CTE principals.
- **Implement a uniform system of data collection and analysis** that will allow for ongoing planning and monitoring of program effectiveness.
- **Address the hybrid structure at Edison High School**, which currently offers separate CTE and traditional academic programming.

7. CTE School-based Leadership and Teaching

Findings:

- Only two of eight CTE schools currently have an administrator that is state certified as a CTE Director.
- CTE Teachers may have sufficient field experience but lack professional training as high school instructors. In fact, over one-third of CTE teachers do not have four-year degrees, and a similar fraction is new to the field of teaching, holding only emergency certification or intern status.
- There is no organized system for professional development specific to the needs of CTE teachers.
- The district currently lacks a system for collecting information on CTE teachers’ industry specific skills beyond their occupational skills assessment.

Recommendations:

- **Train CTE principals in specific roles and responsibilities** associated with being a successful instructional leader in a CTE high school.
- **Develop a professional development center** to provide high-quality training on the unique skill sets required to design and deliver rigorous and relevant CTE instruction.
- **Adopt an “adjunct faculty” model** that will enable industry professionals to provide expert support to students in CTE classrooms.
- **Work with the Pennsylvania Department of Education to change ACT 48 requirements** to ensure that a significant portion of continuing education credits for CTE teachers are industry related.

- **Encourage the Bureau of Career and Technical Education (BCTE) to require local education agencies** to collect industry-related credentials for CTE teachers.

8. Funds to Support CTE Schools and Programs

Findings:

- Significant education-related resources are available to the School District to support CTE, but are insufficient to fully support current programming.
- Other funding streams related to youth workforce development are also available to the City, but are not currently dedicated to CTE.
- It is unlikely that current funding, even augmented by related support, would be sufficient to support the recommendations contained in this report.

Recommendations:

- **Increase, leverage and/or reprogram existing funding streams** to support recommendations.
- **Raise new funds** to support targeted recommendations, incentivize structural changes and pilot programs.
- **Strategically target new and leveraged resources** to support recommendations, especially in the areas of: Equipment and Facilities; Human Capital; and Programming and Curriculum.

CONCLUSION

Career and Technical Education in the School District of Philadelphia is well-positioned to provide high-quality educational opportunities for City students, enabling them to become world-class employees, entrepreneurs and leaders for the Greater Philadelphia economy. Its unique mix of high schools focused on career-connected education, connections to engaged and involved employers, and highly motivated students offers the essential components of an educational pathway to postsecondary education and high-wage/high-demand careers.

Informed by research and by the insights of leaders from public, private and non-profit sectors, this report offers a series of

recommendations that build on these strengths, and proposes innovative strategies that will enable the School District and the City to realize the potential of CTE schools.

Despite the challenges, investments in creating and maintaining a high-quality CTE system for Philadelphia are critical - for the well-being of our regional economy, and for that of the many young people for whom well-designed CTE programming represents the best pathway to high school graduation, post-secondary education and career success.

Attachment: Career and Technical Education Offerings in the Schools District of Philadelphia

Adapted from the Philadelphia Workforce Investment Board's "Research Brief: Career and Technical Education Programs in the Philadelphia School System"

Cluster	No. of Students Enrolled	No. of POS	Program of Study Listing	Associated w/ High Priority Occupation	No. of Industry Certs. Offered	No. of Schools offering POS	Strong employment opportunities w/ a diploma	Requires post-secondary education to be successful	Competencies that must be present for success
Agricultural Science	342	4	Agriculture Business & Production	No	2	1	Low wages in food processing; poor articulation with opportunities for veterinary technicians	Natural resource occupations; farm management	Stronger science and math
			Agriculture Production Workers & Managers	No					
			Agriculture and Food Processing	Yes					
			Agriculture Production Operations	No					
Business/Finance	441	2	Business Technology	Yes	8	4	Good wages and many opportunities	Not necessary for many entry-level positions	Strong budget and writing skills
			Business/Accounting, Finance	Yes					
Communications/ Graphic Arts	629	4	Graphic Communication	No	2	4	No	In most cases a Bachelor's degree	Logic and creative visual skills
			Graphic Design	No					
			Commercial Photography	No					
			Cinematography/Television & Radio	Yes					
Construction	723	9	Carpentry	Yes	5	6	Yes- barriers for entry exist because of union apprenticeship programs	Necessary for engineering and electromechanical occupations	Strong measurement skills, ability to read schematics
			Construction	Yes					
			Appliance Installation Repair/ Heating & Ventilation	Yes					
			Electrical Construction and Maintenance	Yes					
			Electromechanical Technology	Yes					
			Engineering Related Technology	Yes					
			Plumbing Technology	Yes					
			Welding Technology	Yes					

Cluster	No. of Students Enrolled	No. of POS	Program of Study Listing	Associated w/ High Priority Occupation	No. of Industry Certs. Offered	No. of Schools offering POS	Strong employment opportunities w/ a diploma	Requires post-secondary education to be successful	Competencies that must be present for success
Cosmetology/ Fashion Design	304	3	Cosmetology	No	2	2	With certification, but wages low	No	Budget and accounting
			Barbering	Yes					
			Fashion Design	No					
Health	537	3	Child Care	Yes	11	5	Jobs available with a diploma pay very poorly and do not offer advancement	Yes, a vocational or associates degree is necessary	Academic skills to succeed in post secondary education – lab techniques
			Health Information Management	Yes					
			Health Related Technology/Cert Nursing Asst	Yes					
Hospitality	707	2	Baking	Yes	1	6	Yes, but low wages	Some specialized training may improve career opportunities	Timeliness, good communication
			Culinary Arts	Yes					
Information Technology	259	2	Web/Multimedia Design	Yes	6	4	No	Yes, most occupations require a Bachelor's degree for career growth	Logic and math, good communication
			Computer Systems	Yes					
Law and Public Safety (new)	39	1	Criminal Justice	No	0	1	Yes- requires on-the-job training	No	Good communication skills; writing
Transportation	370	3	Automotive Collision Repair	No	8	4	Yes- requires on-the-job training	No	Measurement; math and organizational skills for logistics and warehousing
			Automotive Repair Technology	Yes					
			Logistics and Warehousing	Yes					