

# LEHIGH CAREER AND TECHNICAL INSTITUTE

SCHNECKSVILLE, PA



## LCTI'S KEY STRATEGIES AT-A-GLANCE

- **Instructors integrate** academic and CTE instruction to create rigorous learning experiences.
- **Serve Occupation Cluster** labs help special education students with more significant disabilities develop technical skills.
- **The Career Academy Program** focuses on personalized learning experiences to help at-risk students graduate.
- **The “curriculum development, delivery and evaluation process”** emphasizes integrated curriculum that aligns to college-readiness skills and professional-level certifications.
- **Instructional coaches** conduct job-embedded professional development.
- **“Educator Academies”** encourage instructors to share instructional strategies with colleagues.
- **Data analysis** provides critical information to support student achievement.
- **The “CTE Improvement Plan”** will examine the effect of interventions on student achievement.
- **Ongoing communication** and outreach efforts strengthen relationships with key stakeholders.

# Introduction

Located in Schnecksville, Pennsylvania, Lehigh Career and Technical Institute (LCTI/Lehigh) provides career and technical education (CTE) to approximately 3,000 secondary students in Lehigh County. This represents almost 25 percent of the eligible high school students in the county. LCTI serves students from nine school districts (Allentown, Catasauqua, East Penn, Northern Lehigh, Northwestern Lehigh, Parkland, Salisbury, Southern Lehigh and Whitehall-Coplay) and currently offers 50 secondary CTE programs in its expansive 450,000 square foot facility.

There are three enrollment options for secondary students in grades 10 through 12 (although in certain cases students can attend in ninth grade as well). Students may enroll in the half-day program, which provides CTE instruction at LCTI and students' academic course instruction at their home school. Students may also opt to enroll in the Academic Center, a full-time program which serves approximately 300 students, allowing them to take both their academic and CTE coursework at LCTI. The flex-day program is a third enrollment choice for students. Students who participate in this program may attend LCTI for one or more periods a day depending on their individual CTE needs. LCTI also offers adult education programs.

LCTI has a Joint Operating Committee that acts as the governing body and is comprised of representatives from each of the nine consortium school districts. The leadership team includes an executive director,

a director of CTE, a director of academic and special programs, a director of postsecondary and workforce education and a director of curriculum and instruction. LCTI employs 78 CTE instructors, 30 academic instructors, six counselors and three special education instructors.

The demographics of LCTI reflect the diversity of its student population. Approximately 56 percent of students are Caucasian, 34 percent are Hispanic, and nine percent are African-American. Fifty-four percent of students are considered economically disadvantaged. Special education students comprise 28 percent of the total student population.

The leadership team and staff at LCTI have focused improvement efforts on strategies designed to increase the academic and CTE performance of all students. LCTI emphasizes the development of strong programs and curricula that explicitly merge CTE and academic content, as well as the provision of ongoing and job-embedded professional development to support high-quality teaching. While the Academic Center is not currently meeting all of its Adequate Yearly Progress (AYP) targets in mathematics, the Academic Center met 13 out of the 14 performance targets that were required in 2008-2009. The Academic Center did not meet the performance target in the White-population sub-group in mathematics. Therefore, the Academic Center's status for the 2009-2010 school year is School Improvement II. All performance targets were met in reading. LCTI is implementing a series of strategies to improve student achievement.





## CREATE A STANDARDS ALIGNED SYSTEM

### Instruction

- Integrate literacy and numeracy strategies into CTE
- Build relevance through cross-curricular linkages

### Intervention

- Provide extra help to strengthen academic and/or technical skill achievement
- Deliver personalized student support and guidance

### Curriculum Framework

- Create a standardized and aligned curriculum

### Fair Assessment

- Use assessment results to target instructional strategies

### Clear Standards

- Create standards for all CTE Majors (established by the Pennsylvania Department of Education Bureau of CTE (PDE-BCTE))

### Materials and Resources

- Offer materials and resources to CTE schools and programs (provided by PDE-BCTE, and through the Technical Assistance Project and the CTE Best Practices Initiative)



## SUPPORT A STANDARDS ALIGNED SYSTEM

### People

- Build a culture of targeted and ongoing professional growth
- Center teacher evaluation within a culture of professional growth
- Develop a cohesive team

### Processes

- Be intentional and systemic about change
- Make program and instructional decisions based on data

### Partnerships

- Cultivate relationships with community, business and industry partners

# Key Improvement Strategies for Pennsylvania CTE

## ABOUT THE PENNSYLVANIA CTE BEST PRACTICES INITIATIVE

The Pennsylvania CTE Best Practices Initiative, carried out by the Meeder Consulting Group in partnership with the PDE-BCTE, is documenting the strategies used by CTE programs to create standards aligned systems and to support those systems with people, processes and partnerships. All of these strategies are aligned to the goal of increasing academic and technical achievement among students.

Leaders and teachers in Career and Technical Education (CTE) programs that improve are very intentional about achieving student success. They thoughtfully develop a Standards Aligned System, and support that system with people, processes and partnerships to deliver results.

*Pennsylvania has adopted the SAS (Standards Aligned System) as a comprehensive approach to improvement of student achievement across the Commonwealth. The SAS model is supported by six elements: Clear Standards; Interventions; Materials and Resources; Instruction; Curriculum Framework and Fair Assessment.*

*More information about the SAS Model can be found at [www.pdesas.org](http://www.pdesas.org).*

## STANDARDS ALIGNED SYSTEM INSTRUCTION

### Integrate Literacy and Numeracy Strategies into CTE

The administration and staff at LCTI set high standards for student achievement and expect instructors to help students meet these goals. The school's vision states, "Every student will be provided with a high quality education in a safe and nurturing environment, leave ready for postsecondary education without remediation, and enter the workforce with the highest skills available." This vision is significant because it sets the goal that students will graduate with a high level of academic skills so they will not require academic remediation at the postsecondary level. The vision also sets the expectation that students will be able to earn professional level technical certifications while they are still in high school, depending on their personal motivation and performance.

To create richer and more rigorous learning experiences for students, the integration of CTE and academics with a particular focus on the development of numeracy and literacy skills is central to classroom instruction. Administrators expect integration to occur consistently in every classroom.

Three primary practices support the move toward integration:

- Curriculum alignment
- Professional development
- Math and literacy instructional coaches

### Curriculum Alignment

When the leadership team launched the standardized curriculum development, delivery and evaluation process (described in a later section) in 1996, it acted as a catalyst to foster a school-wide focus on integration. As a first step, instructors aligned academic and CTE standards in order to identify what to integrate and how to integrate within their curricula. For every CTE course, the staff created curriculum maps that document which academic concepts are integrated, how often the concepts are integrated and which academic concepts currently are not covered, but could be integrated. The academic and CTE instructors meet to review and revise the maps.

### IN THE SPOTLIGHT

The math and literacy coaches provide intensive, job-embedded professional development for teachers to support academic and CTE integration.

### Professional Development

To help instructors make the connection between the conceptual practice of aligning standards and the actual delivery of integrated CTE and academic content at the classroom level in a coordinated and sustained manner, the administration provides and supports extensive professional development on integration strategies. As of 2010, academic and CTE integration and literacy/numeracy development comprised two of the five goals for professional development. During regularly scheduled, but informally styled, afterschool sessions (Educators' Workshops), staff members share strategies for integrating instruction. Instructors also share this

information through more formal workshops that focus on how to connect academic standards to CTE content.

The following provides a sample of the professional development sessions that focused on integration:

- A workshop in the summer of 2009 that focused on integrating math and science in CTE. Approximately 30 of the 78 instructors attended this two-week session.
- A year-long series offered during the 2008-2009 school year by the math instructional coach titled "Math You Don't Teach but Probably Could."

## Math and Literacy Coaches

To help support student literacy and numeracy skill development, LCTI leaders decided to hire a math instructional coach in 2008 and a literacy instructional coach one year later. The instructional coaches work with instructors, rather than directly with students, to help them improve their instructional practices. Their ultimate goal in providing job-embedded support to instructors is to increase student achievement. The coaches provide voluntary professional development, one-on-one consultation, instructional modeling and feedback on instructional strategies in order to help instructors develop and refine their integration strategies.

Instructors consistently plan lessons and entire curricula that explicitly link academic and CTE content to create deep and meaningful learning experiences for students. They use literacy strategies such as word walls, writing

prompts, research projects and pre- and post-reading comprehension practices to strengthen literacy skills. All instructors use these common strategies so they become part of the instructional culture of the CTC.

Students calculate math problems and apply measurement skills to develop their numeracy skills. One student described how she used measurement skills to analyze a sample crime scene in one of her law enforcement classes. Another student discussed calculating horsepower and energy in the electro-mechanical automated systems technology program. As one CTE instructor noted, she previously "had no formal education as a math teacher or an English teacher," and yet, as a result of the coaching, she can now identify and explain relevant math concepts to her students.

As a result of the support provided by the administration for integration and the efforts of the instructional coaches, there is a clear expectation among all staff that integrated CTE/academic instruction become an embedded practice.

## Build Relevance through Cross-Curricular Linkages

Instructors in the Academic Center at LCTI collaborate with CTE instructors in order to make academic concepts more relevant for students by linking them to the concepts students learn in their CTE programs.



For example, a science instructor teaches a “Chemistry to Life” unit in which he applies environmental science concepts to the CTE programs in which students participate. A math instructor co-teaches the Pythagorean Theorem with a CTE instructor so that students realize the practical application of the theorem. One instructor noted that such integration is critical to “help kids see the need” for academics and to secure their buy-in for learning academic concepts.

## STANDARDS ALIGNED SYSTEM INTERVENTION

### Provide Extra Help to Strengthen Academic and/or Technical Skill Achievement

To meet the needs of special education students with more significant disabilities, LCTI operates Service Occupation Cluster (SOC) labs. Implemented in 1978, the SOC labs provide intensive support services in math, reading and technical skill competency to students in a small group setting. The supervisor of special education and her team identify the job opportunities in the community and focus on developing programs that will prepare SOC students for success in those jobs. As of the 2009-2010 school year, there were five labs:

- Building Trades Maintenance
- Indoor/Outdoor Maintenance/Landscaping
- Food Service
- Material Handling
- Hospitality Services

The leadership team at LCTI emphasized that the SOC labs “are not exploratory programs,” meaning they are not just low-level survey programs, but actually focus on helping students to realize their full potential and develop skills for employment. The labs focus on helping students to realize their full potential. In each program, students learn basic entry-level skills and then progress as far as possible in learning more advanced technical skills. Students receive instruction in the small group setting and then move into the regular lab for their technical skill training. To fully support SOC students, LCTI allows them to remain in the program until they are 21 years old.

### Deliver Personalized Student Support and Guidance

At LCTI, administrators and staff make the effort to develop personal connections with students and to help students overcome barriers to success. Students stress that instructors treat them as individuals and listen to their concerns. As one student stated, there is “somebody there to believe in me,” and “my teacher is always proud that I accomplished something.”

### The Career Academy Program

In the Career Academy Program (CAP), administrators and staff provide intensive support to their students. As a full-day, alternative education program, CAP serves at-risk students and those in danger of dropping out of high school based on their previous performance. Most of the students identified for



CAP had experienced challenges in terms of their behavior, grades and/or attendance at their home schools. CAP strives to help students reintegrate into school at an appropriate grade level. To do this, the program emphasizes building student self-esteem and providing personalized education experiences. The program offers seven CTE programs that are closely integrated with the student's core academic classes. For the 2009-2010 school year, CAP enrolled 170 students in grades nine through 12.

Under the CAP, instructors implement several strategies and resources to help students be successful and graduate from high school. For example, the course schedule at CAP is built on a three-week rotation—students receive one week of academic instruction followed by two weeks of instruction in a CTE program. CAP staff members believe this schedule increases student engagement and is appropriately paced. To further support their academic achievement, CAP also offers students several options to recover academic credits, such as completing summer school through their sending school or taking the necessary courses at Lehigh Carbon Community College.

CAP provides comprehensive student services to address the personal challenges faced by students. The program maintains a social worker on staff to provide more individualized and holistic support to students beyond in-class support. CAP students also participate in several community service projects as part of the program to strengthen their self-esteem, life skills and ties to the community.

During the 2009-2010 school year, staff in CAP also implemented a positive behavior support

program. For one month, instructors track the types of discipline problems they face and this data is collected to identify the most pervasive problems within the program. The staff members then teach a lesson on each identified discipline problem to the entire student body. After the lesson, instructors complete another month-long discipline report to assess whether changes occurred in student behavior.

The strong support provided to CAP students by their instructors is recognized by students. As one CAP student observed, the instructors, "give you so much time and effort. They want to help you."

## STANDARDS ALIGNED SYSTEM CURRICULUM FRAMEWORK



### Create a Standardized and Aligned Curriculum

The leadership team emphasizes the importance of developing and implementing a standardized and aligned curriculum to support strong CTE programs and improved student performance. As the Director of Curriculum and Instruction stated, "Curriculum is the heart of any school. The better your curriculum ... the better your school."

To maintain program and curriculum integrity, the leadership team established a standardized curriculum development, delivery and evaluation process for all of its CTE programs in 1996.

Conducted primarily by instructional staff, the school's curriculum development, delivery and evaluation process addresses how to create a curriculum that aligns academic and technical standards, integrates literacy and numeracy skills and can be organized around a series of learning tasks. The curriculum must be aligned to college-readiness academic skills and professional-level certifications. The following steps represent the key components of the process:

1. Create a **course description**.
2. Identify the **career objectives** for the course based on O\*Net. (O\*Net is an online career exploration and job analysis tool developed by the US Department of Labor.)
3. Develop a **task list** using state and national certifications, when possible, as guides for identifying the tasks on which a student must attain proficiency. The task lists identify the total amount of time students are to spend on each task. According to the Director of Curriculum and Instruction, this is the most important step in the process, and it drives every other phase of the curriculum model.
4. Based on career objectives, develop a **task grid**. The grid outlines the tasks students must accomplish to meet specified career objectives. Compared to the task list, the grid provides students with the big picture of what they must accomplish to meet the requirements for specific careers.
5. Identify the relevant **Pennsylvania academic standards and eligible content** that align to the CTE content. "Eligible content" refers to those

standards which are assessed by the Pennsylvania System of School Assessment (PSSA).

6. Create **learning guides** to help organize the curriculum. Learning guides address how academic standards will be integrated in the course content and include the following components:
  - The task(s) to be taught and the purpose of the lesson
  - The expected learning outcome for students
  - Specific academic and technical objectives of the lesson
  - Resources required to teach the lesson
  - Learning activities
  - Performance evaluation criteria
7. Develop a **task tracking system** to record student progress.
8. Create a **performance assessment log (PAL)** for students to use to track their individual progress. The PAL is a student-friendly version of the learning guide.

Administrators and instructors cited many positive outcomes of the curriculum development, delivery and evaluation process. By participating in the process, instructors become more familiar with the courses they teach and better understand the long-term goals of their programs. The learning guides and performance assessment logs create opportunities for instructors to differentiate the pacing of instruction to meet the individual needs of students. Students participate in contract grading and set quarterly goals based on the technical skills and tasks they want to cover. Finally, the process explicitly addresses the integration of academic and CTE content, with a particular focus on math, science and English, so

that instructors know how to blend the content areas throughout the curriculum.

## SUPPORT A STANDARDS ALIGNED SYSTEM WITH PEOPLE

### Build a Culture of Targeted and Ongoing Professional Growth

Instructional staff members participate in ongoing professional development that focuses on school-wide improvement initiatives and the individual needs of instructors. Professional development occurs through a collaborative process that engages instructors as key partners in the process. To guide their prescriptive and collaborative approach to professional development, the leadership team identified five goals to be addressed through professional development:

- Academic and CTE Integration
- Literacy/Numeracy Development
- Technology Development

### IN THE SPOTLIGHT

Teachers attend afterschool “Educator Academies” which address their specific needs, build on their identified strengths and provide opportunities for peer-to-peer professional learning.

- Curriculum Development
- Social Development (collaboration and interpersonal skill development)

To meet the professional development goals and to also address the individual needs of instructors, LCTI uses two primary approaches to the delivery of professional development: 1) Instructional coaches and 2) Afterschool “Educator Academies” lead by staff members. Both of these approaches, to be explained in more detail below, view instructors as key drivers in their individual professional growth and embrace the notion of using in-house talent to provide professional development. As the Director of Curriculum and Instruction stated, LCTI has “a lot of talent ... we feel that if we can use the resources we have in-house that helps with the sustainability.”

Instructors indicate that they value the professional development they receive and view it as applicable to their day-to-day teaching and their professional growth. Instructors are encouraged to share ideas for professional development with the administration, and the administration seeks their input and feedback through tools such as surveys. The Director of Curriculum and Instruction observed a change in the attitude of instructional staff since LCTI began refocusing its professional development model in 2000 to be more responsive to the needs and ideas of instructors. She noted, “People have been taking a lot of ownership for their professional development.”



## Instructional Coaches

The math and literacy coaches at LCTI provide instructors with targeted professional development through staff workshops, individual consultations, modeling and classroom observation. The literacy coach stated, “Our goal is to move professional development away from ‘drive-by’ training ... to giving trainings based on assessment of needs in the building and then following that training through.” To help meet this goal, the instructional coaches focus on being responsive to what instructors tell them they need and on making professional development job-embedded. For example, the instructional coach may observe a lesson, collect data during the lesson on a specific instructor behavior and then help the instructor analyze the data and use it to set professional goals. The instructional coaches also provide extensive training on applying integration strategies and addressing literacy and numeracy skills through afterschool sessions and more extensive workshops. Ultimately, the literacy coach described their mission as trying to “help teachers improve classroom instruction which will result in higher student achievement.”

## Educator Academies

The leadership team offers instructors the opportunity to attend afterschool professional development sessions, referred to as “Educator Academies.” The Academies address specific professional goals and needs of instructors and are conducted in-house by staff members, such as the

instructional coaches or instructors. Instructors find value in participating in these peer-to-peer learning sessions which occur throughout the school year. As one instructor noted, “We all have our strengths and weaknesses,” and the Academies provide a rich opportunity for instructors to share instructional strategies and collaborate, maximizing on individual strengths and addressing specific shortcomings.

## Develop a Cohesive Team

Since 1996, when these expectations became part of the culture at LCTI, the leadership team has noticed a distinct shift in the attitudes of instructors regarding the potential for improvement. While initially some instructors expressed concern about the feasibility of these and other new expectations, they began to experience success in helping students achieve at higher levels. Dr. Hornberger reports that instructors eventually realized “their own limitations were the limitations they were setting for the kids.” He stated that instructors “understand where we’re going, and now they want to be part of it.”

Rather than hire new staff members to meet this goal, leadership positions were reorganized and staff moved into new positions to make the team work more effectively and efficiently.



## SUPPORT A STANDARDS ALIGNED SYSTEM WITH PROCESSES

### **Be Intentional and Systemic About Change**

In order to improve CTE program quality, the leadership team enacted changes through a systemic process that started with “the end in mind.” The team estimated that this process needs to occur over an extended amount of time, approximately four to eight years, in order to result in significant and sustainable change.

With the goal to establish top-quality CTE programs driving the change process, the leadership team outlined three essential elements required to develop and sustain this level of program excellence.

#### **Curriculum and Instruction**

The leadership team first emphasized the need to focus on program curriculum in order to improve student outcomes. As discussed previously, this focus drove the decision to require instructors to develop standardized and aligned curricula and to provide instructors with targeted professional development.

#### **Personnel**

After the staff developed the curriculum, the leadership team then focused on ensuring the quality of the instructors delivering instruction. The leadership team made clear that all instructors were expected to support the curriculum changes and meet the instructional expectations. To build strong

Dr. Hornberger emphasizes the importance of creating a strong, focused leadership team to drive program improvement. Before the realignment process occurred, the leadership team included a director, a principal, two assistant principals, an administrator in charge of pupil services and several coordinators. To strengthen the leadership structure, three changes were made. First, the curriculum director position was elevated from the level of teacher coordinator to an administrative position. The principal position was changed to the director of CTE, and finally, the position of director of academics and special programs was created to manage the increasing number of special programs implemented at LCTI.

Throughout this realignment process, experienced staff members who were dual certified in both CTE and academics were assigned to the newly created positions. Since they have extensive educational experience and a background in both fields, these staff members are expected to understand and address educational issues from a broader perspective and would collaborate effectively.

The realignment process brought together leadership team members that could “speak with authority and have the authority to make decisions” critical to supporting improvement.

programs, LCTI hired instructors who demonstrated a commitment to the reform process and who ultimately would drive change at the classroom level.

The reorganization and realignment of the leadership team marked another key step toward developing strong programs. As discussed earlier, Dr. Hornberger brought together a leadership team whose members possessed both CTE and academic certifications and had the vision and commitment to support effective reform.

The leadership team also focused on recruiting advisory committee members who understood the mission of LCTI and its programs. The leadership team made an effort to “educate them on the process of quality programming” and encouraged them to “take ownership” of their programs. These efforts helped committee members to realize the importance of quality programming to support a quality workforce, as well as their potential influence within this process.

## Resources

To meet the goal of program quality, the leadership team took action to provide advanced technical equipment and machinery. Each curriculum articulated the specific tasks students need to carry out in their courses, and the leadership team made sure programs had the equipment required to perform the tasks. This element of the change process aligned the expected performance outcomes with the resources necessary to achieve them.

Throughout the change process, the leadership team “never stopped focusing ... on the programs” and the realization of its broader vision to establish high-quality CTE programs.



## Make Program and Instructional Decisions Based on Data

The faculty performs extensive data analysis to determine the root causes of student outcomes and to improve individual student and school-wide performance. The Director of Academic and Special Programs stated, “The data is where accountability really happens.”

The leadership team finds the extensive data analysis useful in developing Perkins indicators, AYP school performance reports and the CTE school improvement plan. As the Director of Academic and Special Programs stated, “Any time we need data, we can use this system to our advantage.”

To begin the data analysis process, the leadership team first collects data from three primary sources: the Pennsylvania System of School Assessments (PSSA), National Occupational Competency Testing Institute (NOCTI) technical skill assessments and the Pennsylvania Information Management System (PIMS), which is a statewide longitudinal data system. After collecting the data, the leadership team merges records using common data elements, such as the student identification number. The data-merge process allows vast amounts of data to be cross-analyzed for a more extensive look at the correlations between student and school factors and performance outcomes.

The list below provides a small sample of the type of analysis performed at LCTI:

- Compare number of NOCTI participants to program completers.
- Calculate CTE hours by student and by program.
- Determine retention rates by program.
- Analyze the distribution of withdrawal reasons.
- Compare NOCTI pre-test scores to PSSA outcomes in reading and math.
- Identify the number of special education students from each sending district.
- Identify the number of FRL students (eligible for free and reduced lunch) by grade level.

In addition to cross-analyzing the data, the administration also manipulates it to make it more manageable for staff and instructors to use productively. For example, PSSA data typically is reported out by assessment anchors. The assessment anchors clarify the standards assessed on the PSSA and can be used to prepare students for the PSSA. The metaphor of an “anchor” is used to signal that the assessment anchors would anchor both the state assessment system and the curriculum/instructional practices in schools.

LCTI breaks the data down to a more concrete, measurable level. While an assessment anchor may focus on the broader skill of being able to represent numbers in equivalent forms, LCTI breaks this down to the eligible content level, such as, “The student is able to use scientific notation.” The eligible content is known as the “assessment limits” and identifies how deeply an anchor need to be covered or the range of content needed to best prepare students for the PSSA. Not all of the eligible content is assessed on the PSSA, but the eligible content shows the range of knowledge from which the tests were designed.

The leadership team shares data with instructors and trains them on how to use the data to drive their classroom instruction and to best meet the needs of their students. For example, the NOCTI pre-test data for the new class of seniors is reported to instructors at a data in-service session held at the beginning of the school year. Using the integrated data reporting system, the NOCTI pre-test scores are aligned with the PSSA math and reading scores so that instructors can identify areas of strengths and weaknesses in each of their students.

A student with a low NOCTI pre-test score may score proficient on the reading PSSA suggesting that the variable affecting the NOCTI score is technical

## IN THE SPOTLIGHT

Teachers are trained to use data to drive sound decisions about classroom instruction and interventions that support student achievement.

skill attainment rather than reading ability. Such information can be used to target instruction, provide additional support and determine appropriate classroom groupings of students. The leadership team points to this type of data-driven decision making as a key factor in helping 86 percent of students improve from the pre-test to the post-test NOCTI scores for the 2008-2009 school year.

## Career and Technical Education Improvement Plan

During the 2009-2010 school year, the school leadership team began to develop a Career and Technical Education Improvement Plan as part of LCTI’s participation in the Technical Assistance

Program (TAP). (A Pennsylvania Department of Education initiative sponsored by the Bureau of CTE, TAP provides technical assistance to help schools focus on improving student achievement. The program emphasizes student performance on the math and reading PSSA and on the NOCTI assessments. LCTI began participating in TAP in 2008.)

Instructors in the six CTE programs will be offered professional development to assist them in reaching the goals of the improvement plan.

The goal of the Improvement Plan is to measure the effect of specific interventions on student achievement. To this end, the performance of students in six CTE programs will be monitored over a three-year period as they receive specific interventions. Student progress will be monitored through the use of the following data:

- 8th and 11th grade PSSA test scores
- NOCTI pre- and post-test scores
- Standardized diagnostic benchmark assessments in reading and math
- Test results broken down into subgroups
- Behavioral referrals
- Attendance
- Completion rate
- Grades

## SUPPORT A STANDARDS ALIGNED SYSTEM WITH PARTNERSHIPS



### Cultivate Relationships with Community and Business/ Industry Partners

The leadership team has successfully and intentionally cultivated an extensive support network among key community stakeholders. To develop these strong relationships with the local community and business and industry partners, they address local workforce needs and engage in ongoing communication and outreach efforts. Dr. Hornberger emphasizes the mutual benefits of these strong connections among all stakeholders. He stated that “career and technical education is workforce development which is economic development, which is ... a better tax base, which is improved schools. It’s a continuous cycle.”

This alignment between the programs offered and the local workforce needs highlights how LCTI supports the economic well-being of the community and the needs of local businesses.

The leadership team participates in ongoing communication with local business and industry partners to solicit their feedback on program-related decisions. For example, members of the Occupational Advisory Committee (OAC) provide input during the hiring and equipment purchasing processes.



They also review program curriculum to ensure the skills, knowledge and abilities addressed in the programs align well with workforce expectations. The effort made by the leadership team to engage their partners in meaningful decision-making and respond to their concerns highlights the extent to which the administration values their involvement. As Dr. Hornberger stated, "What makes our programs work here are our advisory councils."

Before LCTI offers a program, the leadership team performs a detailed analysis of local economic trends and labor projections (available jobs and requisite skills) to ensure that the CTE programs will meet the needs of the local workforce.

The school leadership team engages in numerous outreach efforts to secure the support of local business and industry stakeholders. Through membership on several boards, school leaders stay attuned to local economic needs and communicate how LCTI can help address those needs. Many of the business and industry stakeholders in turn serve on the advisory board at LCTI. Both educators and business and industry are well informed to support and promote the mission and goals of one another.

LCTI has achieved and maintained the International Organization for Standardization (ISO) certification for quality since 2001. ISO provides an important structure and organization to the school's programs. LCTI's registration status also impresses many local

businesses and industry partners. According to the school leadership team, businesses sense that LCTI has a deep understanding of their needs and challenges because of their shared involvement in ISO.



## Strengthen Relationships with Education Partners

The school leadership team emphasizes the importance of the school's strong connections to adult CTE programs to bridge the gap between secondary and postsecondary opportunities. There is a shared mission with the adult education program to prepare all students for lifelong learning and successful careers. For programs that are offered at both the secondary and adult education levels, LCTI operates joint advisory councils. This setup fosters a common understanding of how secondary and adult education programs may interact and affect one another.

The adult education programs are aligned with industry needs. In 2009, at the request of an industry partner, LCTI helped develop a math course for industrial maintenance technicians. The industry partner had identified a need to strengthen employees' math skills. According to the school leadership team, the successful implementation of this course highlights how important it is for students and instructors to understand that what they do in the classroom today will carry over into the workplace.



## RESULTS

<b>LCTI School Performance Results</b>			
	Proficient and Advanced Reading (PSSA)	Proficient and Advanced Math (PSSA)	Competent and Advanced NOCTI
2007	31.0%	18.8%	52.4%
2008	28.9%	22.5%	49.5%

Source: "Three Tier Ranking 2007-2009 Comparison" report provided by PA Bureau of CTE.

<b>LCTI Enrollment and Certification Data</b>			
	CTE Student Enrollment	Students Earning Certifications	Industry Certifications Earned
<b>2005-2006</b>	2,353	106	125
<b>2006-2007</b>	2,938	92	132

Source: "Industry Certifications Earned by Students in Each ACTES"  
(Table 8 in "PA Area Career and Technical Education Schools 2008 Report").



## FUTURE GOALS /NEXT STEPS

Dr. Hornberger identified two goals for LCTI as it continues to focus on school and student improvement:

1. Fine tune administrative and instructional practices based on data.
2. Continue to take on changes that are meaningful to school reform.

The leadership team at LCTI is experienced, having implemented its vision of school improvement since 1996, marking a long period of sustained leadership and ongoing improvement. Still, the leadership team is not resting on its achievements or in the size and scope of its student body, physical facility, and extensive program offerings. Rather, the administrators, faculty, students, and business and education partners of Lehigh Tech are continuing to press forward to higher levels of student achievement and program quality.

THIS CASE STUDY WAS PREPARED BY HANS MEEDER AND MICHELLE HEBERT-GIFFEN OF MEEDER CONSULTING, LLC (WWW.MEEDERCONSULTING.COM), A FIRM SPECIALIZING IN LEADERSHIP AND ALIGNING EDUCATION SYSTEMS WITH WORKFORCE NEEDS, ON BEHALF OF THE PENNSYLVANIA BUREAU OF CAREER AND TECHNICAL EDUCATION.

AS PART OF THE PENNSYLVANIA BEST PRACTICES INITIATIVE, BUREAU OF CTE DIRECTOR DR. LEE BURKET AND CONSULTANTS FROM THE MEEDER CONSULTING GROUP CONDUCTED A ONE-DAY SITE VISIT TO LEHIGH CAREER AND TECHNICAL INSTITUTE IN JANUARY 2010. DURING THE VISIT, THE SITE VISIT TEAM CONDUCTED INTERVIEWS WITH THE LEADERSHIP TEAM, GROUPS OF CTE INSTRUCTORS, COUNSELING FACULTY AND STUDENTS, AND TOOK A WALKING TOUR OF CTE PROGRAMS.

INFORMATION ABOUT CTE IN PENNSYLVANIA CAN BE FOUND AT  
WWW.EDUCATION.STATE.PA.US/PORTAL/SERVER.PT/COMMUNITY/CAREER\_&\_TECHNICAL\_EDUCATION/7335/.

LAST UPDATED NOVEMBER 18, 2010

## Resources

**Lehigh Career and Technical Institute** • [www.lcti.org](http://www.lcti.org)

**High Schools That Work** • [www.sreb.org/page/1078/high\\_schools\\_that\\_work.html](http://www.sreb.org/page/1078/high_schools_that_work.html)

**Enhancing Professional Practice—A Framework for Teaching by Charlotte Danielson**

For more information, see [www.ascd.org/publications/books/106034.aspx](http://www.ascd.org/publications/books/106034.aspx).

**Association for Supervision and Curriculum Development (ASCD)**• [www.ascd.org](http://www.ascd.org)

**National Staff Development Council**• [www.nsd.org](http://www.nsd.org)

**Association for Career and Technical Education (ACTE)**• [www.acteonline.org](http://www.acteonline.org)

**Pennsylvania Department of Education - Bureau of Career and Technical Education**

[www.education.state.pa.us/portal/server.pt/community/Career\\_&\\_Technical\\_Education/7335/](http://www.education.state.pa.us/portal/server.pt/community/Career_&_Technical_Education/7335/)

## Contact Information

**Lehigh Career and Technical Institute**

CLYDE K. HORNBERGER, ED.D, *Executive Director*

4500 Education Park Drive, Schnecksville, PA 18078

610-799-1322

[www.lcti.org](http://www.lcti.org)



The Pennsylvania Department of Education does not discriminate in its educational programs, activities or employment practices based on race, color, national origin, sex, sexual orientation, disability, age, religion, ancestry, union membership, or any other legally protected category. This policy is in accordance with state law, including the Pennsylvania Human Relations Act, and with federal law, including Title VI and Title VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination in Employment Act of 1967 and the Americans with Disabilities Act of 1990.

**The following persons have been designated to handle inquiries regarding the non-discrimination policies:**

**FOR INQUIRIES CONCERNING  
NON-DISCRIMINATION IN EMPLOYMENT**

*Pennsylvania Department of Education  
Equal Employment Opportunity Representative*

*Bureau of Human Resources*  
333 Market Street, 11th Floor  
Harrisburg, PA 17126-0333  
Voice Telephone (717) 787-4417  
Text Telephone: (717) 783-8445  
Fax (717) 783-9348

**FOR INQUIRIES CONCERNING NON-DISCRIMINATION  
IN ALL OTHER PENNSYLVANIA DEPARTMENT OF  
EDUCATION PROGRAMS AND ACTIVITIES**

*Pennsylvania Department of Education  
School Services Unit Director*

333 Market Street, 5th Floor  
Harrisburg, PA 17126-0333  
Voice Telephone (717) 783-3750  
Text Telephone (717) 783-8445  
Fax (717) 783-6802

COMMONWEALTH OF PENNSYLVANIA  
**Edward G. Rendell, Governor**

DEPARTMENT OF EDUCATION  
**Thomas E. Gluck, Acting Secretary**

OFFICE OF ELEMENTARY AND SECONDARY EDUCATION  
**Amy C. Morton, Deputy Secretary**

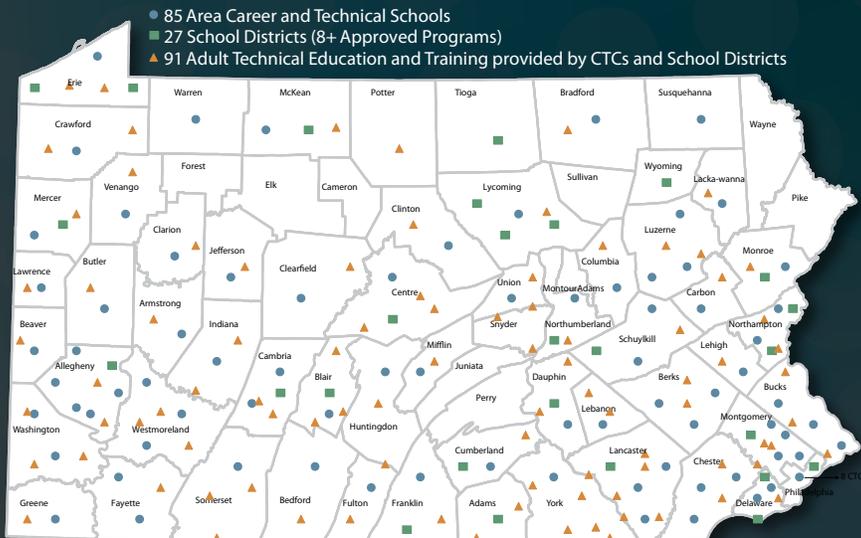
BUREAU OF CAREER AND TECHNICAL EDUCATION  
**Lee Burket, Director**

DIVISION OF PROFESSIONAL DEVELOPMENT  
AND SUPPORT SERVICES  
**K.C. Simchock, Division Manager**

November, 2010

.....

## SECONDARY CAREER AND TECHNICAL EDUCATION DELIVERY SYSTEM



.....

### FOR QUESTIONS ABOUT THIS PUBLICATION

**Bureau of Career and Technical Education**

333 Market Street, 11th Floor • Harrisburg, PA 17126

Telephone (717) 772-4177

Fax (717) 787-8867

Email [ra-bvtefunding@state.pa.us](mailto:ra-bvtefunding@state.pa.us)

.....

## PENNSYLVANIA CTE *Best Practices Initiative*

Pennsylvania provides a critical state investment of approximately \$62 million in funding for CTE, including some funding for competitive equipment grants, adult training and about \$5 million for high school reform efforts including teacher preparation.<sup>1</sup>

Pennsylvania supports 85 career and technical centers, 141 school districts and 44 postsecondary institutions offering Career and Technical Education. These career and technical centers, colleges, universities and private postsecondary institutions offer over 2,100 secondary approved programs, over 1,000 postsecondary programs and over 500 adult programs.

<sup>1</sup> Pennsylvania Area Career and Technical Education Schools 2009 Report  
To strengthen the impact of the state's investment, the Pennsylvania Department of Education is implementing a multi-faceted improvement plan. This plan addresses critical issues facing career and technical education in Pennsylvania, including workforce development and academic preparation.

For more information on Pennsylvania CTE and the Best Practices Initiative, visit the Pennsylvania Department of Education – Bureau of Career and Technical Education website at: [www.pde.state.pa.us/portal/server.pt/community/Career\\_&Technical\\_Education/7335/](http://www.pde.state.pa.us/portal/server.pt/community/Career_&Technical_Education/7335/)

Or contact:

**Dr. Lee Burket, Director**

Bureau of Career and Technical Education

Pennsylvania Department of Education

Telephone (717) 787-5530

Email [lburket@state.pa.us](mailto:lburket@state.pa.us)