Spotlighting promising practices from the 2021 Making Schools Work Conference

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Taking a Deep Dive Into Data to Improve CTE Program Quality

How a two-time Pacesetter winner is making data work for its teachers and students

By Kirsten Sundell, SREB

Teachers and school leaders are awash in student data, but many struggle with how to assess its quality and validity, store it safely and harness it to improve curriculum and instruction.

At **Penta Career Center in Perrysburg, Ohio** — winner of a Gene Bottoms Pacesetter School Award in 2018 and 2020 — career and technical education teachers and leaders are improving student and program outcomes using a step-by-step process to collect, organize and analyze assessment data in their CTE programs.

The suburban career-tech center serves 16 school districts in five counties with six sophomore exploratory programs, eight "level one" CTE programs, 26 on-campus CTE programs for juniors and seniors, and two senior-only credentialing programs. The center averages more than 4,000 students on campus each year in grades 10-12. About 41% of students are economically disadvantaged, and 40% of students have special needs.

Penta's Six-Year Assessment Literacy Initiative

When the Ohio Department of Education launched its teacher evaluation system in 2013, Penta needed a way to capture student growth. Leaders and teachers saw that students were performing well on teacher-created assessments, but not so well on state end-of course tests, called WebXams. Staff recognized that the two types of assessments were not aligned at the same level of rigor.

Penta's staff knew they needed to not only determine how well they were preparing *career-ready students* — students equipped with the skills needed to think critically and solve problems versus simply completing tasks — but also gauge teacher effectiveness, score high marks on the state's CTE report card *and* earn compliance on CTE program reviews.
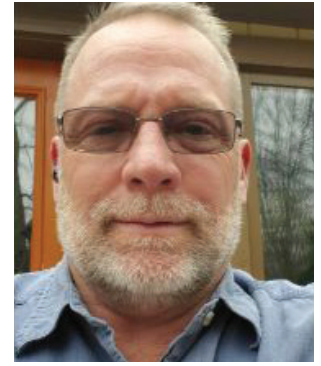
Christina Kerns, Curriculum and Instruction Supervisor

Nicole Costello, Small Animal Care Instructor

Jennifer Rigali, Small Animal Care Instructor

*Jeff Miller, Heating and Air Conditioning Technology Instructor*

With these needs in mind, Penta's Curriculum and Instruction Supervisor Christina Kerns and her CTE program administrators came together to build consistency and rigor across assessments in a **schoolwide assessment literacy initiative** that centered on aligning curricula to assessments. The initiative is now in its sixth year of implementation.

Following a train-the-trainer model, Kerns worked with administrators on gauging the level of rigor of standards, creating assessment items and activities aligned to specific levels of rigor, and designing "stretch" activities that allow students to demonstrate growth. CTE administrators then repeated the same steps with CTE program instructors.

Tools and Steps of Penta's Assessment Literacy Initiative

Kerns and her staff use powerful tools to help assess levels of rigor in their instruction. Every teacher received a *Critical Thinking for Life Wheel*, which features the Depth of Knowledge levels on one side and the revised Bloom's taxonomy levels on the other.

Kerns asserts that *Hess's Cognitive Rigor Matrix* (download a PDF copy) is one of the most valuable tools districts and teachers can use to drill down to a granular level of student knowledge and understanding. Other tools commonly used by Penta teachers are the *Levels of Thinking in Bloom's Taxonomy and Webb's Depth of Knowledge* and the *Depth of Knowledge Thinking Cap*.
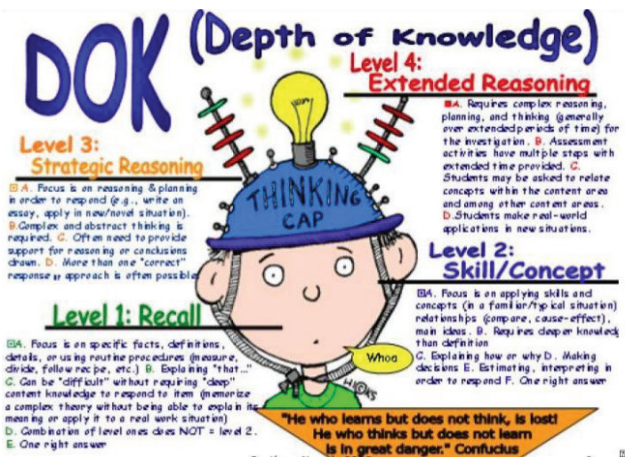
The Depth of Knowledge Thinking Cap used by Penta's administrative and teaching staff

The first two years of Penta's initiative were used to prepare leaders and teachers to collect valid and reliable data by applying the DOK levels to course standards, aligning instruction and assessments to those levels, and creating assessment maps.

Years 3 and 4 focused on collecting and conducting initial analyses of good data, implementing rigorous assessments, reflecting on the effectiveness of assessment items and refining as needed. Leaders and teachers dug deeper into WebXam test data and adopted data tracking systems for individual students and whole classes. Teachers and leaders also began rethinking their lesson plans to target three areas of significant course standard deficiencies.

In Years 5 and 6, teachers and leaders created a Success Plan for managing, analyzing and using data to take Penta's CTE programs to the next level. This has involved creating a shared vision for improvement, identifying strengths and weaknesses, setting objectives and establishing a plan for implementing and refining data analysis methods. Staff conduct root cause analyses, design CTE data dashboards, study WebXam outcome reports and blueprints, and analyze achievement gaps.

Learn more about Penta's Small Animal Care program in this video.

## Spotlight: Penta's Small Animal Care Program

Nicole Costello and Jennifer Rigali, instructors in Penta's Small Animal Care program, share how they analyze data on instruction, assignments and assessments using five key strategies:

- best practices of project-based learning
- spiderweb discussions
- project assessment maps
- student data dashboards
- pre-post assessments aligned to industry credentials

Well-designed **project-based learning** units give students voice and choice and allow them to model and design their own solutions, says Costello. Students work with peers to critique and revise their work, unlike old-school pass-fail unit tests.

Students are "used to the teacher driving the lesson. They just sit back, take down some notes, and regurgitate the material back to you," explains Costello. "I was trying to have them to be independent thinkers. I was doing research trying to help myself and help them, and I stumbled upon spiderweb discussions."

Drawn from Alexis Wiggins' *The Best Class You Never Taught*, **spiderweb discussions** structure classroom discourse to promote student-led discussions that engage every member of the class. Following this model, teachers remain hands off, more outgoing students encourage quiet students to talk, and distracted students and those who tend to dominate discussions are held accountable.
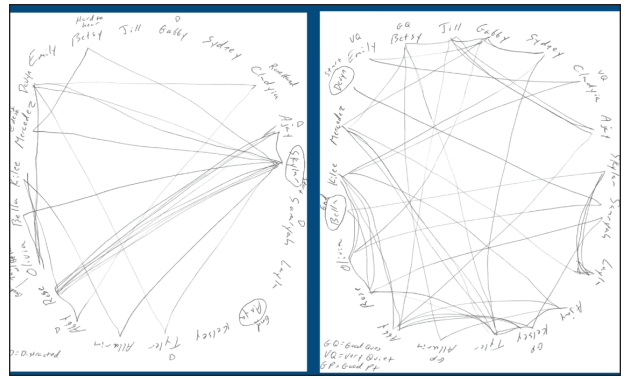
Examples of spiderwebbed discussions show how (before, at left) some students are quiet and some dominate the conversation and (after, at right) all students take responsibility for encouraging each other to contribute.

Project assessment maps (download a PDF sample), introduced in the first two years of Penta's initiative, help Costello stay on track, ensure her students are learning what they need to, and track the DOK levels of her assignments.

A **student data dashboard** helps Costello stay accountable to herself, too. An Excel spreadsheet evaluates student scores against benchmarks, turning green, pink or red to indicate whether students are scoring above, at or below benchmark. Pink or red signal that students may need specialized interventions — or a rethink of her instructional approach.

The first time she saw her columns turn pink she was "flabbergasted… I was a 'least effective teacher'… I thought, those students didn't study. [But] when I looked back, I was like, there's something wrong with what I did because even my really good students didn't do well. So, I went back, revamped the lesson, differentiated and taught it again… I now had a lot more greens and I scored a four… It's not the highest, but I was OK with that," she explains.

Instructor Jennifer Rigali uses Easy TestMaker to create **online pre-post assessments** that align with state standards and her program's industry-recognized credentials. Pretest data "give me a starting point for instruction," says Rigali. "The post assessment not only analyzes student knowledge, but it gives me the opportunity to evaluate whether the lesson needs improvement. Do I need to change my instruction to improve results?"

Rigali uses Google Forms to empower students to reflect on skills they know or are unsure of. Self-assessments help Rigali determine the extra help students need to prepare for industry credentials.

Costello's spreadsheet cells turn green, pink or red, signaling students who may need help — or a change in her instruction.

Suggestions and Next Steps

As Penta's assessment literacy initiative moves forward, leaders and teachers continue to monitor the growth of Penta's on- and off-campus programs. Says Kerns, "This is working for us… we couldn't be where we are today without those first two years of assessment literacy where we really took the time to align the curriculum to the assessment items."

For CTE programs considering their own data collection models, Kerns and her team share a process you can follow in the full video of their 2021 Making Schools Work Conference session, which we're making available to *Promising Practices Newsletter* subscribers along with resources shared in their session, which we link to below. In the video, Heating & Air Conditioning Technology Instructor Jeff Miller explains how his student self-assessments and data dashboard helped 100% of seniors and 65% of juniors pass Ohio's Mechanical, Electrical and Plumbing exams. CTE program supervisors Jerry Gladieux and Tonya Kessinger also share how they used data to create an action plan for an IT pathway. Download Penta's resources to adapt for your programs:

- Analyzing Student Data Question Prompts (Word)
- CTE Project Assessment Map (PDF)
- Detailed Analysis of Student Work (Word)
- Penta's 2017-18 Student Data Tracking Packets (PDF)

- HVAC Sample Data Template (Excel)
- Sample HVAC CTE Teacher Dashboard (Excel)
- HVAC Student Daily Production Report (Word)

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Avocado toast prepared by Calhoun-Gilmer Career Center students as part of a problem-based learning assignment

CTE Students Help Make Their Community a Healthier Place

By Jean Massey and Diane James, SREB

Students at **Calhoun-Gilmer Career Center** in **West Virginia** are getting valuable hands-on experience through their Simulated Workplace classrooms, and in the process, they are helping to improve their community's health.

In West Virginia's Simulated Workplaces, students transform their classrooms into authentic workplace environments. Students are treated like employees, work in teams, engage in problem-based learning and work on real-world projects. It's an effective way for the center to reach its goal of preparing students for the workplace, a trade school or a two- or four-year college.

In the 2019-20 school year, culinary arts instructor, Chef Liljon McCormick presented his students with an essential question: "How can we help our local community through CTE?"

Student Pepper McCormick, sous chef of the Coyote Beautiful Simulated Workplace for culinary arts, said the only guidelines students received for solving the problem were to develop a project that had purpose, provided a service and had an entrepreneurial opportunity. "We began our journey through the design cycle by brainstorming any idea that we could … and boy, did we do a lot of brainstorming," says McCormick.

Brainstorming sessions led students to realize that nutritional health, especially related to heart disease and diabetes, was a significant problem in their area. According to the Centers for Disease Control and Prevention, West Virginia has the highest rate of adult-onset diabetes — also known as Type 2 diabetes — in the nation. Type 2 diabetes increases risk for other serious health problems such as heart disease or stroke as well as problems with the kidneys, eyes, feet and nerves. The good news is that maintaining a healthy weight through proper diet and exercise is the best way to avoid and perhaps even reverse Type 2 diabetes in its early stages.

Students in the Coyote Beautiful Simulated Workplace realized the project would be immense, so they reached out to two other Simulated Workplaces at the center: Riverside Healthcare, the Simulated Workplace for therapeutic health science, and Calhoun-Gilmer Innovations, the Simulated Workplace for digital technology.

With all three Simulated Workplaces driving the PBL, the idea of a **Hometown Healthy Cookbook** was born with an emphasis on diabetic needs. Students owned the work, made decisions, got engaged and came to the table full of ideas. Teachers served as facilitators — and grew comfortable with not knowing exactly where the project would eventually lead.

Teamwork: Putting Ideas Into Action

At the beginning of the project, students from Riverside Healthcare gave a presentation to Coyote Beautiful and Calhoun-Gilmer Innovations students to give them a better understanding of how a recipe book could help address problems related to nutritional health and diabetes in West Virginia.

Caitlin Parson, a Riverside Healthcare student, shared: "It's an amazing opportunity for the educators as well as the students because it puts us all together to get a better understanding of what diabetes is. We wanted to bring the community together to expand their knowledge as well."

Calhoun-Gilmer Innovations students created a rough draft layout of the cookbook as Coyote Beautiful students worked to create cookbook-ready recipes. Student Tori Arnold's Calhoun-Gilmer Innovations team reached out to publishers to investigate the cost of having the cookbook published and also tasked themselves with creating marketing materials to publicize the events associated with Hometown Healthy activities.

Tori Arnold of Calhoun-Gilmer Innovations and Pepper McCormick from Coyote Beautiful prepare a test recipe for the cookbook.

Coyote Beautiful students decided to take the cookbook idea a step beyond. While setting up their test kitchen, students realized that it's easier for people to visually learn how to follow a recipe than to simply read about it. That's when the Coyote Beautiful team decided to create a YouTube channel and post videos about how to make as many of their Hometown Healthy recipes as possible.

Teachers and Standards

As the Hometown Healthy Cookbook project evolved, it became obvious which curricular standards were being covered. Chef McCormick's culinary students, for example, learn about weights, measurements and nutritional values.

Calhoun-Gilmer instructor Virginia McCormick teaches digital technology, broadly covering business and all computer-related topics. The standards that come into play in her classroom include marketing, digital imaging, desktop publishing and photographic documentation.

Nurse Rhonda Williams teaches in the Riverside Healthcare Simulated Workplace. Her students learn about nutrition, the basic food groups and therapeutic diets. "Finding recipes that are good plus healthy for you" is tough, notes Williams.

English is embedded into every Simulated Workplace and career-tech program at Calhoun-Gilmer. Students choose to attend CTE programs because they are interested in those fields. Integrating academic knowledge and skills into CTE classes through content-specific material blends the best of both worlds. Traci Evans, Calhoun-Gilmer's English teacher, calls it "sneaky learning." During the Hometown Healthy project, Evans ensures students use concise and meaningful communications in surveys, recipes and the like. Students were also tasked with writing video scripts for their YouTube recipe tutorials.

Chef Liljon McCormick taste tests a recipe that will be used in the cookbook.

During the project, students learned a lot without fear of failure. Because learning involves solving problems instead of finding the right answer to a purely right-or-wrong question, "that means we never got anything wrong, unlike regular school," shared Arnold. "Now we find things that don't work, and we fix them," she adds.

COVID-19 Delays

Hometown Healthy students faced many setbacks due to COVID-19. For example, students wanted to host some community events to assess where their neighbors stood in their knowledge of diabetes. Instead of in-person events, however, students were able to administer a survey. Chef McCormick maintained the pandemic delays didn't disillusion students — in fact the opposite happened: "The most exciting thing that I see students doing is solving problems for themselves and not falling at the first hurdle."

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Strategies to Educate and Support Young Males of Color

By Jahana Martin, SREB

Educators need to not only provide academic instruction to students but also manage classrooms and students' disciplinary issues. To do this, they need to understand their students. But K-12 disciplinary data suggest that the most misunderstood students in grades K-12 — and thus the most likely to be suspended and expelled — are black and Latino males, according to national education consultant Robert Jackson.

To increase success for these at-risk young men *and* the educators who reach and teach them, Jackson provides strategies educators can use to address discipline problems, trauma and adverse experiences that affect these youth.

According to Jackson, students who have had Adverse Childhood Experiences are more likely to also experience academic failure, attendance problems and behavioral problems than students who have not had an ACE.

Robert Jackson, education consultant

Trauma in the Home Environment or Community

Educators often don't see or recognize some of the trauma these young men experience. Jackson calls this "invisible" trauma — which may include incarceration, poverty, homelessness, a lack of insurance or other critical resources, and depression. When students are socially and economically disadvantaged, they lack the resources they need to survive and be successful. Examples of social and economic disadvantages are divorced parents, food insecurity and student loan debt. Awareness of these forms of trauma helps educators build relationships with students.

Young men of color experience trauma in different, numerous ways, notes Jackson. They may personally experience an event, watch it happen to someone else, hear about it or repeatedly be exposed to multiple traumatic events. Roughly 75% of young males exposed to traumatic events have an unmet need for mental health services, says Jackson. "Children who have been forced to deal with adult issues later become adults who wrestle with children's issues," he states.

How educators approach a young male who seems angry can make a difference in getting through to the student. According to Jackson, the root of anger is fear, frustration, pain and hurt. Instead of asking, "Why are you hurt?" try questions like, "What are you in pain about?" or "What's hurting you?"

Jackson says educators can help students to deal with pain by advising them to:

1. acknowledge the pain
2. write it down
3. speak to someone they trust
4. forgive themselves and anyone else they need to in order to release the pain

Teachers' Perceptions

Teachers' perceptions and biases matter. Through his research, Jackson found, "Teachers were more likely to judge misbehavior as hostile if the child was African American." Jackson said that media also portrays black and brown young men differently than their white counterparts.

Perceptions can be harmful. "Kids are scared," Jackson says. "But there is a difference between scared and disrespectful."

"Don't Take It Personally"

When a student exhibits anger, rage, disappointment or hopelessness due to trauma, abuse or neglect, it may be difficult, but teachers should not take those displays of emotion personally, maintains Jackson. This is a great time to show empathy for students. "We can have empathy, but we can't feel sorry for them. We need to set high expectations."

Young men are often taught to be "strong" — they are told "Don't cry," "Man up," "Be tough" or "Don't show emotion or weakness." Instead, young men need to hear words of affirmation: "You will be successful," "You are smart" and "I believe in you." Such messages build self-esteem and shape their personal and academic growth.

Conflict Resolution

Disrespect should be defined at the district level and not have different meanings throughout the school or district, Jackson insists. When resolving conflicts with students, educators should consider asking questions like "What happened," "What part did you play," "Who was affected" and "How can you repair the harm?"

It's also critical that educators address issues with students face-to-face, Jackson says. "If you offend a child publicly, apologize publicly."

Jackson also advises that lectures aren't effective, and educators should always reference specific behavior and give specific solutions. "Be clear, direct and firm," he says. "Instead of suspending a student, hold them accountable. Lead by example. Let's hold ourselves accountable for our actions."

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SREB's New Powerful Health Education Instructional Practices

Inspire students to promote health and wellness in their homes and communities

SREB's new Powerful Health Education Instructional Practices show teachers how to design instruction and assignments that encourage students to develop health literacy skills, explore and adopt health-enhancing behaviors, and connect the healthy practices they learn in the classroom to their own lives and those of their friends, family and community.

Teachers who follow these powerful practices draw on national, regional and local public health data and other sources to identify priority health issues for the local community. Authentic learning experiences engage students in identifying the protective factors, risk behaviors and health-enhancing behaviors that influence these health issues and complete projects that require them to problem-solve and implement changes to health behaviors and practices at school and at home.

Students develop essential literacy skills — reading, writing, speaking, listening and thinking—as they formulate ideas and share different experiences and personal or cultural perspectives on health with their peers. Students create diverse oral, written or visual products to inform others about health-enhancing behaviors, such as interviews, podcasts, blogs, wellness plans, menus, scripts, ads or videos.

The Powerful Health Education Instructional Practices were originally developed by SREB in partnership with the Hawaii Department of Education and later refined by a team of SREB content-area experts to align with our full suite of Powerful Instructional Practices.

Look for SREB to launch related services soon. Explore the health education practices and download the accompanying model at https://www.sreb.org/powerful-instructional-practices-health-education.

Free Fall Instructional Webinars

Create a common vision for quality instruction! Don't miss our **FREE webinars** on how to embed powerful instructional practices that promote student success in your curriculum, lessons and assessments. Webinars include:

- November 4: CTE
- November 10: Science
- November 16: Project-Based Learning
- November 18: Social Studies
- December 2: Elementary Grades
- December 15: Integrated CTE and Academics

All times: 3:30 – 5 p.m. Eastern

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