

Changing Approaches—

BY TRAVIS PARK, DONNA PEARSON AND JENNIFER SAWYER

Over the past seven years, research teams from the National Research Center for Career and Technical Education (NRCCTE) have been at work testing curriculum integration models. Each of three studies—Math-in-CTE, Authentic Literacy-in-CTE, and Science-in-CTE—has focused on the development of pedagogic frameworks and delivery of professional development. An unintended but powerful outcome of this research has been a growing respect between the career and technical education (CTE) and academic worlds and changing perspectives about CTE and its contribution to student academic achievement.

Despite the progress we are making in the field, misperceptions about CTE abound. Some of these are deeply rooted in the experiences of those who attended or heard about the vocational education programs of the past. Many people still feel that CTE is appropriate only for a certain segment of the school population. For instance, they may still believe that students in automotive technology only learn how to change oil and fix brakes, or that students in agriculture are going to work on the family farm. Through our collective experiences with curriculum integration research and technical assistance, we have learned just how deeply these misperceptions persist.

Today, even strong proponents of CTE, including students themselves, persist in believing that CTE is much more about hands-on applications than about

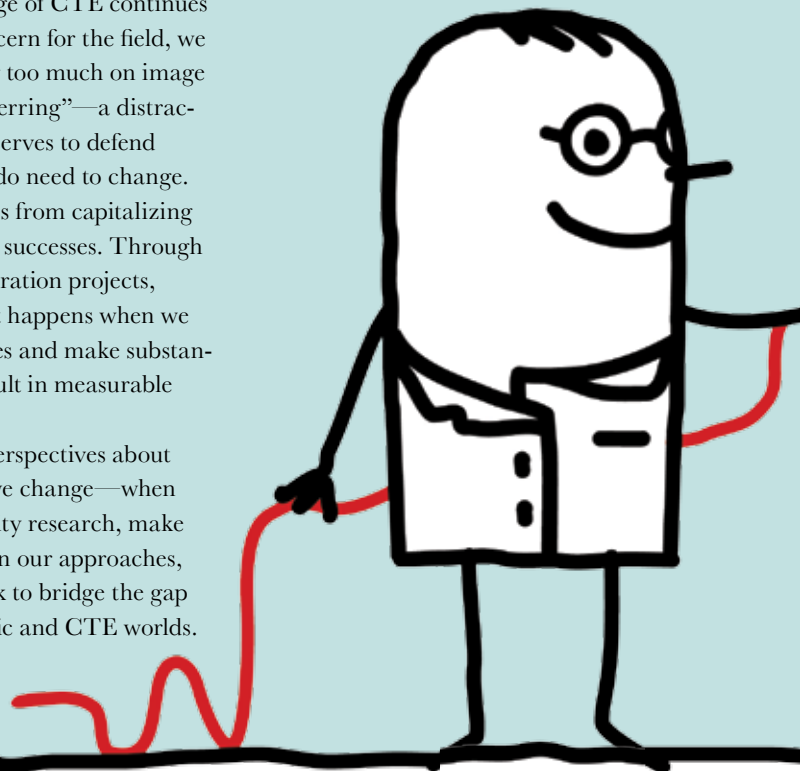
minds-on problem-solving that requires critical math, reading and science skills. Sometimes these misperceptions are based on what's popular at the moment. For instance, a criminal justice teacher recently characterized the misperceptions of his students this way: "Students enroll in my classes because they want to shoot people. What they soon learn is that criminal justice is all about reading and writing case studies and thinking about crimes. We don't shoot anybody." Starting a CTE program with misinformed expectations can keep students from benefitting from programs that are rich in opportunities for high levels of academic integration, especially in literacy.

Although the image of CTE continues to be a source of concern for the field, we caution that focusing too much on image can become a "red herring"—a distraction that sometimes serves to defend practices that really do need to change. It may also prevent us from capitalizing on our strengths and successes. Through our curriculum integration projects, we are learning what happens when we examine our practices and make substantive changes that result in measurable improvements.

We suggest that perspectives about CTE change when we change—when we pursue high-quality research, make purposeful changes in our approaches, and consistently work to bridge the gap between the academic and CTE worlds.

Building Credibility Through High-Quality Research

CTE tends to be a "doing" field—our experience-oriented, pragmatic pedagogy is one of our greatest strengths, attracting and engaging students who want to "do" something. However, that very benefit has often come at the expense of an environment that promotes conducting high-quality research to undergird our practices. The field is in a unique position to capitalize on the experiential opportunities it holds for students, but that alone is not enough. We must also ground our practices in valid, reliable research.



— Changing Perspectives



PHOTO COURTESY OF THE NRCCTE



▲ Sandra Flannigan, a marketing teacher from New Hampshire, and her math partner, Mike Shore, work on planning a math-enhanced lesson.

PHOTO COURTESY OF JENNIFER SAWYER



▲ Chef Ron Cornish begins curriculum mapping for Math-in-CTE during the summer 2010 professional development session.

Conducting rigorous research has the potential to propel CTE to the educational forefront, building credibility for the field in the larger educational forum. For example, we designed our NRCCTE curriculum integration studies as group-randomized trials in which teachers and their classes were randomly assigned to control and experimental groups. Additionally, each study employed a mixed-methods approach to capture qualitative data associated with the treatment. These design features were important because they help lead us to the most reliable findings. Indeed, the findings from these studies have contributed to a better understanding of curriculum integration

and increased awareness of the academic rigor possible in CTE courses.

Even if we are not the researchers, our collective participation in and support of research elevates the entire field. More importantly, teaching practices grounded in good research can make a real difference for students. Administrators and teachers alike are hungry to find models that work; however, they also work in a world of heightened accountability. They need assurance that their investment and efforts will have measurable and lasting impact. The NRCCTE academic integration studies and others like them are providing evidence that CTE teachers and programs can make significant, measurable contributions to their students' readiness for college and careers.

Changing Practice Purposefully Using Tested Models

For many students, CTE courses offer the most interesting and engaging activities of their school day. When teachers begin to teach in an integrated way, their students not only develop in their occupations or trades, they also begin to grow academically. Culinary students prepare foods for an event and apply their scientific understanding of bacterial growth; construction students manufacture trusses and deepen their geometry skills; automotive students strengthen their reading comprehension as they consult manuals for an engine repair. These become the everyday experiences of students in classrooms with CTE teachers who have purposefully embraced a new way of teaching and learning. Capitalizing on student interest and engagement makes a difference, as one student shared: "What I read in here, I'm going to use a lot more than what I read about in English class, [because] whatever you learn in here, you are looking toward a career with it."

We find that educators are generally willing to embrace change when they know that their time and efforts will count for something. Rightfully, they are not

interested in one more "reform *du jour*." Lasting change occurs when teachers are presented with doable, tested models and provided with ample time and opportunity to implement them. One CTE teacher said it best:

"[This] really changed many of my ideas! I always knew we had important content for our students, now I'm so much better prepared to teach them! I'm so much more confident in my ability to teach better."

Bridging the CTE and Academic Worlds

We have observed that when teachers begin to work in an integrated way, opportunities abound for bridging the CTE and academic worlds. When we conduct Math-in-CTE sessions, CTE teachers are partnered with math teachers. Together, they develop curriculum maps and lesson plans. As they work closely together over time, their perceptions begin to change and respect grows. More than one math teacher has called it an "eye-opening" experience. Another expressed it this way: "I have a greater respect for the academic side of CTE. I see the importance of CTE in students who would normally not have success in a purely academic setting. All students are learners, each in their own way and environment. You learn what you need to succeed in the areas that are important to you."

Integration was once described by a CTE teacher as "where the carpet meets the concrete." This comment brings our attention to the fact that academic and CTE teachers and programs are often miles apart, either figuratively or literally, in separate wings or buildings. This not only signals a "difference" to students, it contributes to an "us" and "them" mindset and can inhibit collaboration between academic and CTE teachers. When these teachers finally have an opportunity to interact, it reaps great benefits, as we hear in this math teacher's words: "I walked away with a greater sensitivity and

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awareness of what goes on at our “other” school. I have seen the value of the programs in the lives of students. I have an appreciation of what the CTE teachers do and teach. This was a great experience.”

CTE teachers also see academics through a different lens. Those using our literacy models have developed broader views of education and the role of CTE curricula in contributing to students’ academic development. By helping students select and use appropriate literacy strategies, they view themselves not as reading teachers, but as CTE teachers providing another set of tools to better understand CTE content.

Although the reading skills have inherent value within the CTE curriculum, the transfer of those skills to other classes can yield even more profound benefits. Whereas prior to working on curriculum integration with CTE teacher partners, core academic teachers were unaware of the rigor of CTE programs, after such collaborations, they realized both the rigor and the relevance involved in solving problems in CTE fields.

CTE teachers in our integration workshops often comment on how they have gained confidence in using their academic skills and begun to see their own curriculum differently. When CTE teachers begin to realize the full value of their curriculum for student achievement, their perspectives change. Moreover, their academically struggling students begin to feel empowered when they see the connec-

tions between the CTE world, in which they are successful, and the academic world in which they are not.

Changing Perspectives

For the multitude of students who benefit daily from their CTE courses, the value of their programs is not an issue of image. The true value lies in the reality of the learning experience: the significance of authentic learning in context every day. We are learning that CTE changes organically as instructional approaches change; thus, the views of our students and professions change as we integrate curriculum.

As the differences between career readiness and college readiness continue to decrease, CTE teachers’ contribution to student achievement becomes even more profound. This changing role may produce some growing pains, but it also makes growth possible—growth for the student, for the teacher, and for the field of CTE. When armed with research that shows the benefits of CTE programs and equipped with tested, instructional approaches, CTE administrators and teachers will make valuable contributions to the whole of education. This is the emerging image of CTE. **T**

For more information about the NRCCTE curriculum integration studies, visit our Web site at www.nrccte.org.

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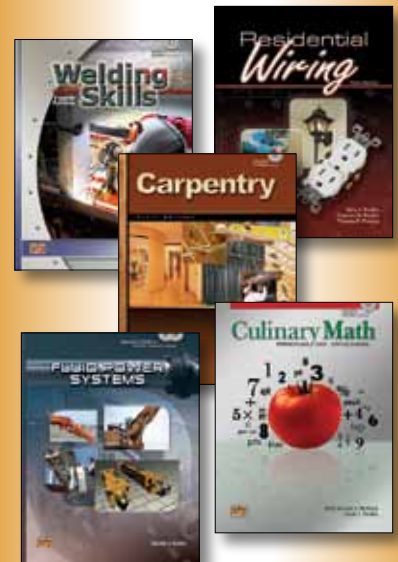
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