The revisions to the Carl D. Perkins Career and Technical Education Act of 2006 require that career and technical education (CTE) programs provide students with a clear pathway from secondary to postsecondary education, and into high-wage, high-skill and high-demand careers. States nationwide are developing programs, called career pathways, to provide students with a clear route beginning in middle school through to secondary education and beyond. Many states were on this track prior to this legislation, but the transformation has gained momentum and is taking shape across the nation.

Career pathways are structured sets of courses that build upon each other to develop academic and technical skills to move the student to the next phase of education. At the middle school level, the pathways tend to be more about general career exploration, life skills and study skills. As the student moves through the pathway, courses become more specific to the career area. Students are allowed some flexibility early in the process to change career pathways; however, as students move through a pathway it becomes more difficult to switch from one career path to another because the courses are built upon one another, and continue to become more complex as students progress.

Career pathways give a student the opportunity to visualize his or her future early in the educational journey, and to get the guidance needed to achieve desired goals. Students, parents, counselors, and sometimes teachers, are involved in the process of setting up a plan of study and altering that plan as needed throughout the student’s educational career. Simply making the plan can help students and parents see that succeeding at each level is essential to the student’s overall achievement. If necessary, remediation can be addressed at the early stages when it can be very beneficial. Setting long-term goals and understanding the entire process—from middle school through to postsecondary—helps students succeed.

Career pathways also allow educators to have a clear course curriculum with an end goal in mind. Each course is part of a systematic structure to move the students to the next level. Business and industry stakeholders are an essential part of the planning of the career pathways framework because they directly benefit from the students who are trained in these programs; the economy of an entire community can be altered by increasing the skills of those entering its workforce.

Implementation in Indiana

Across the country, there are various projects at various stages of implementation addressing career pathways. Some states are developing state-level models to be adopted at the local level, while others are providing guidelines for pathways and allowing local systems to develop their own pathways. Indiana has taken the first approach and is in the process of developing a state-level model to be implemented into local programs. In the developmental stages, Indiana looked at several other states’ programs as well as the national model provided by the College and Career Transitions Initiative (CCTI). Officials adopted aspects from each model that
they felt would best fit Indiana’s needs.

The objective of the CCTI administered by the League for Innovation in the Community College, was to develop career pathways with five major outcomes in mind: decrease the need for remediation at the postsecondary level; increase enrollment and persistence at the postsecondary level; increase academic and skill achievement at the secondary and postsecondary levels; increase attainment of postsecondary degrees, certificates or other recognized credentials; and increase entry into employment or further education. The five-year CCTI project demonstrated that students involved in career pathways had lower remediation rates (math-39 percent, English-27 percent, reading-25 percent) than the national averages (math-68 percent, English-62 percent, reading-67 percent). The descriptive findings also showed increased communication as one of the best benefits among students, parents and institutional partners. The components that CCTI found were essential for success were: leadership and vision; collaboration and partnership; effective institutional research; and having college support structures (Kempner and Warford, 2009). The value of the CCTI model is its proven results and the fact that it can easily be adopted by states building their career pathway programs.

In August of 2009, the Indiana Association of Career and Technical Education Districts (IACTED) was awarded a grant from the Indiana Department of Workforce Development (IDWD) and the Indiana Department of Education (IDOE) to develop model curricula and end-of-program assessments for the career pathways project. The grant allowed for the formation of a leadership team and work groups for each career area to construct the parameters of the career pathways project. The leadership team is made up of representatives from the Department of Education, Department of Workforce Development, Ivy Tech and Vincennes University (two state community colleges), and the Indiana Association of Career and Technical Directors. Under this leadership team are work groups for each career pathway. Roberta Jackson, project coordinator for the Career Pathways Project in Indiana, describes the pathway work groups as the core of the project. The workgroups are made up of a CTE administrator, key teachers, a minimum of two postsecondary faculty members, a department of education curriculum specialist, and a minimum of two employer/business representatives in that career field. The groups determine the courses involved in the pathways, content, end-of-course assessments, and dual credit opportunities.

Indiana’s project is nearing the end of Phase 1 of a three-phase project. The first phase is the development of the first half of pathways. Phase 2 consists of the work groups developing the remaining pathways along with the pilot implementation of the pathways developed in Phase 1. This intermediate stage will allow for changes to be made to the pathways prior to full implementation in Phase 3.

According to Matt Fleck, the director of the Division of College and Career Preparation at the Indiana Department of Education (IDOE), Indiana’s goal with this project is to ensure that the academic achievement and career preparation of students is the best in the United States and on par with the world. The IDOE
will do this by creating consistent core content throughout the state that produces solid results on assessments. Indiana wants to align all courses in the pathways to technical certificates, dual credit, or career credentials that lead students to high-wage, high-demand careers in Indiana. The overall project has been created by starting with those end goals and working backwards.

Challenges Faced
Indiana’s current model for the career pathways project starts as early as the sixth grade with career exploration classes (see Figure 1). The foundation and introductory courses in the ninth and 10th grades would allow students to start building a skill base for all of the pathways, and also help them get more specific about which pathways interest them the most.

Students would then enter into the concentration areas in the 11th and 12th grades. These courses would include dual credit options and would lead students into further training or education opportunities within their field of study.

Although Indiana has had great success with the process so far, barriers have been encountered as well. During this process, the state has moved the administration of CTE and some staff from the IDWD to the IDEI. According to Jackson, the transition initially created a lot of confusion regarding the expectations and process of the pathways project. Many of the issues regarding project direction have been resolved, but there are lingering feelings of uneasiness from the local programs because they are working with a new agency. The IDEI and the IDWD are working together to administer some projects through the transition from one agency to another. According to Fleck, the shift has allowed for a more open information sharing and collaboration among the two departments.

Another obstacle for the project has been maintaining a balance between the needs of the local regions and creating pathways with a consistent curriculum statewide. Local concerns include travel challenges, scheduling dilemmas, credit issues and financial restrictions. Dealing with multiple school corporations to coordinate scheduling and grant credits can also be an obstacle for schools.

Schools with more financial support have more options; but all schools have to deal with the cost of testing, materials and equipment necessary to support the programs. There are many successful programs and programs that need to be updated; but they all have to be adapted to integrate a consistent curriculum that
the work groups are developing for each pathway. Meredith Thompson, the executive director of the Indiana Association of Area Vocation Districts, and author of the grant for this project, stated that while the end-of-course assessment piece will ensure consistent content across the state, local advisory committees have to be utilized to maintain the relevance of the programs on a local level.

The process used to develop the pathways has been a back and forth effort between the work groups and the IDEOE. The work groups construct the individual pathways which are submitted to IDEOE. The IDEOE will rework changes it would like to see made to the pathways. The work groups will then supply the IDEOE with positive and negative feedback to their suggested changes. Fleck contends that this give and take type of collaborative process has been frustrating to some involved in the project. However, it has led to increased communication and has brought out ideas that would not have surfaced with other methods.

**Looking Ahead**
The career pathways project in Indiana is still in the developmental stages but many people have seen benefits from it already. Thompson indicated that the biggest benefit to Indiana has been bringing all the players, those who provide CTE or benefit from CTE, closer together. Fleck identified the largest benefit has been the conversations that have taken place between the secondary and postsecondary teachers, CTE administrators, IDEOE staff, and business and industry leaders. The communication has opened doors that are outside the normal realm of thinking and built partnerships that are invaluable. Indiana still has a long way to go with its career pathways project, but the state is on its way to developing a stronger system of CTE. These changes will benefit the students, business and industry, and communities across Indiana by strengthening the skills and adaptability of the state’s workforce.

**References**

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