





PURPOSEFUL PLANNING: Using Data to Drive Programs of Study

By Heather Justice and Candi Norwood

In 2012, Tennessee took a hard look at its offerings in career and technical education (CTE) to determine if students were provided with viable opportunities for postsecondary education and careers; thus beginning an arduous journey of revising the state's promoted CTE programs of study. As the framework to begin the work of alignment to seamless postsecondary and career pathways began to take shape, the state adopted the 16 Career Clusters® recognized by the U.S. Department of Labor and Advance CTE (formerly the National Association of State Directors of Career Technical Education Consortium).

The division of College, Career and Technical Education within the Tennessee Department of Education researched labor market and postsecondary data in

order to make data-driven recommendations for revised programs of study and courses in each career cluster. This process became the basis for a radical change in promoted CTE offerings available to Tennessee schools. Programs and courses that did not lead to viable employment were retired, and new programs and courses were written to address gaps in areas of workforce need.

This same process, which became known as program of study justifications, was implemented at the school district level. Districts have to select programs reflective of regional labor and postsecondary data, demonstrating a seamless pathway for students within their community. Justifications for the programs of study and courses offered by a school district assist in informing all stakeholders of opportunities for viable postsecondary and career pathways.

THE 16 CAREER CLUSTERS

1. Agriculture, Food & Natural Resources
2. Architecture & Construction
3. Arts, A/V Technology & Communications
4. Business Management & Administration
5. Education & Training
6. Finance
7. Government & Public Administration
8. Health Sciences
9. Hospitality & Tourism
10. Human Services
11. Information Technology
12. Law, Public Safety, Corrections & Security
13. Manufacturing
14. Marketing
15. Science, Technology, Engineering & Mathematics
16. Transportation, Distribution & Logistics

Schools that have strong industry and postsecondary data to justify their programs of study can share this information with students to help them make informed choices about their future education and career plans. Students progressing through a program of study are presented with opportunities to enter directly into the workforce and continue on to postsecondary, rather than a “pick-and-

choose” approach from a course catalog with only brief course descriptions for use in decision making. This article details the process for districts to conduct a robust data review to determine the appropriate programs of study to offer.

Data-driven Decisions

Using data in the creation of programs of study and courses leads to a purposeful sequence of courses that have direct alignment to industry in the state, as well as alignment to programs at the postsecondary level. Offerings are no longer in place because “it has always been done this way,” but rather become a backward-designed plan based on current and future labor market needs. Often, when states fall into the trap of offering the same static programs, students find their course work leads to a dead end with no postsecondary or employment options.

Thorough data research requires time and planning. It is beneficial to have CTE administrators and educators work together in the process at the local level. This allows for teachers to have a better understanding of the opportunities available to students, as well as the reasons behind the selection of programs to be offered at a school. Teachers may have favorite courses, but if they see that the course has no direct correlation to available employment, they understand why it is no longer available on the master schedule.

Effective Use of Data

The first step in using data to justify programs of study is to research the offerings at local postsecondary institutions. Postsecondary systems, which comprise technical centers, community colleges and four-year universities, have connected with industry partners to craft their offerings to meet the needs of employers in the region. An exploration of degree programs offered by local colleges should be a yearly exercise for all school systems. If a district offers a program of study that does not have vertical alignment with a postsecondary institution in its area, the student is forced to relocate in order to further his/her education in this pathway.

While postsecondary information sets a framework, state and regional labor market data are the crux of the justification process. Regional and state employment

information is available from the Bureau of Labor Statistics. There is a lot of information available, so it is important to craft specific research questions. Questions like “What are all the new jobs available in my area?” are not specific and may lead to inconclusive results. A better research question is “In the fiscal year 2015–2016, which industries added the most jobs to the local economy as measured by net job flow?”

Net job flow is defined as the beginning of the period employment minus the end of the period employment. This is helpful because it assists the researcher in identifying job destruction and job creation. It is also important to take into consideration wage data; students should have pathways that lead to occupations they can support themselves in.

Job destruction is identified when the end of the period employment is less than the beginning. Some reasons for job destruction include the economy, new technologies that require less human input, outsourcing and obsolete practices. For example, when making travel plans, more consumers are using online travel websites rather than using travel agents; therefore, being a travel agent is becoming obsolete.

Conversely, job creation is identified when the end of the period employment is greater than the beginning. Reasons for job creation include emerging technologies, new markets, industries moving to the region, and state or regional trends. Nashville has a large number of STEM and advanced manufacturing companies. This has led to new jobs in the engineering and mechatronics sectors. It is important that schools in this area of the state understand that students will be needed in the pipeline to fulfill job demands in these areas.

This is an important point about using state data. While it is certainly important to add state data to justification research, it is not applicable to each region in the state. When looking at data, a school district must ask if this data reflects the job market in the region. Nashville’s mechatronics market is not reflected in job markets in all regions of the state. Rural areas will certainly have different needs in employment than the metropolitan areas. For this reason, it is imperative to use multiple sources of data to triangulate the picture of workforce needs in a region.

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Regional data from local economic and workforce development agencies helps to temper state data. In Tennessee, state resources include the Department of Economic and Community Development and the Department of Labor and Workforce Development. The state also has a user-friendly site for all stakeholders, **Jobs4TN.gov**. By researching local data offered here, a school system may realize that it is located in a hotbed of employment opportunities in a specific career cluster. Other labor market sites, such as O*Net (**onetonline.org**), contain useful tools that help districts show the full spectrum of the workforce in the region.

Applying Data to Program Choices

Once a thorough review of labor and economic development data is complete, it is important to crosswalk this data to the postsecondary programs available within the region to triangulate the programs of study, which will allow students to complete a seamless pathway from secondary to postsecondary and the workforce. Based on this analysis, districts then should review and select their programs of study annually.

For example, if a district has determined that a significant number of employees will be needed in the field of advanced manufacturing, a program within this cluster should be selected from the state-offered programs of study. If a district discovers it is offering a program of study that no longer has industry and postsecondary options for students, the district should then plan for how to retire

this program of study to avoid offering dead-end paths to students.

In Tennessee, under the advanced manufacturing career cluster, there are four available programs of study: machining technology, electromechanical technology, mechatronics and welding. Each program of study has a sequence of four courses, including opportunities for work-based learning; industry certifications where applicable; and early postsecondary opportunities, such as dual credit and dual enrollment courses in partnership with local community colleges and technical schools.

Once a program of study is chosen, an implementation plan needs to be created. Administrators may need to hire a teacher, market the program of study to parents and students, recruit industry advisory council members for emerging work-based learning opportunities, and/or begin discussions with local postsecondary institutions to create partnerships for articulation agreements and dual credit/dual enrollment opportunities. Conversely, once a district determines a program of study should no longer be offered, the district can plan through a transition year to assist in exiting students from that program of study, planning for personnel adjustments and communicating with stakeholders.

Informing Stakeholders of Choices

The justification process, if implemented fully, will likely lead to warranted changes in CTE program and course offerings. This is a topic for meaningful professional development for CTE educators, school counselors and administrators. Justifica-

tion documents can be transformed into informative slide banks in order to make all school personnel aware of not only the reasons for change, but also the opportunities available for students.

It is crucial that school counselors understand the data and the interplay with program and course offerings. In many cases, counselors are gatekeepers to a student's selection of CTE programs. Course names on a master schedule do not provide adequate information to allow counselors to assist students in making educational and career decisions. Counselors must be informed of regional workforce demands and postsecondary opportunities, as well as how the CTE programs take advantage of these facts to ensure students have real choices.

Creating a new master schedule is not the end of this process. If the data require that a teacher in a career cluster area change his/her focus to a new program of study, that teacher may need additional training to teach content.

When programs of study and courses were revised in Tennessee, courses were retired or updated to reflect new technologies, theories and processes. Teachers who had been out of contact with industry shared that the new standards held challenges for them. This required the division of College, Career and Technical Education to provide professional development opportunities to address these challenges.

Other professional development opportunities may be created locally to

CONDUCTING JUSTIFICATION RESEARCH

- Research offerings at local postsecondary institutions
- Research state *and* regional labor market and economic development data (job creation/destruction, wage data)
- Crosswalk research results to the postsecondary programs available within the region
- Create an implementation plan
- Market the plan to key stakeholders (faculty, students, parents)
- Review the plan annually to ensure programs of study are current

assist teachers in gathering the necessary information. Providing externships for educators to spend a few days in the workplace reacquainting themselves with industry technology and learning about the advances in processes and equipment are also a fitting complement to ongoing professional development.

In addition to the school faculty, parents and students need to be made aware of the availability of programs. While the data is certainly helpful, some programs may require the addition of some public relations and marketing. For example, the advanced manufacturing industry in 2016 is not the same as it was even 10 years ago. Facilities are no longer grease-laden, dark spaces for workers performing monotonous tasks. Workplaces are well-lit, spotless environments with employees working alongside robots. Well-paid workers are trained in multiple jobs and have access to additional industry-based education so that they may move up the chain.

School districts should plan how to inform students about career opportunities. Simply saying to a student, “You may enjoy a career in advanced manufacturing,” may not generate a positive initial reaction. To combat this, it is helpful if students are invited to career fairs and/or industry tours, with industry and salary information available. This information should be connected to meaningful career counseling that begins in the early grades to allow young students to understand the full spectrum of opportunities available to them.

Revisiting Selected Programs of Study

In Tennessee, justification research is performed annually to ensure that programs of study and courses are current and reflect workforce demands in the state. This does not mean that major revisions are made each time. Often, it is simply a matter of changing a standard within a course or adding content to address emerging technologies.

At the local level, it is advised to revisit the selected programs of study prior to creating a master schedule each year. If a major employer has plans to bring additional jobs to the region, the school district will need to make sure a program of study is in place to have workers in the pipeline for employment. Conversely, if a major employer has closed a plant or office building in the area, research will need to be completed to determine if the program of study is still needed.

Data should be the driver of major decisions in education. CTE programs are not an exception to that rule. Purposeful planning leads to more than just efficient master schedules; it is the basis for thriving economies and a prepared workforce. **Tech**

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Heather Justice and Candi Norwood will be presenting “Using Data in Program of Study Selection” at CareerTech VISION. To learn more about VISION, visit

careertechvision.com

