WORK-BASED LEARNING IN

ACTION

JOBS TO MANUFACTURING CAREERS: WORK-BASED COURSES

Work-based courses bring college to the production line by using the job as a learning lab. They are community college courses that have been redesigned by faculty and employers to prepare students for the workplace by learning in the workplace. Courses are co-taught by faculty in the classroom and employer supervisors on the job. The work-based course model was developed by Jobs for the Future and piloted at Owensboro Community Technical College (OCTC).

JOBS FOR THE FUTURE

BY DEBORAH KOBES | JULY 2016

JOBS TO MANUFACTURING CAREERS

CREDENTIAL

College credit toward an associate's degree; some participants earn an associate's in Industrial Maintenance Technology

POPULATION

Low-skilled adult incumbent workers and adult jobseekers

OUTCOMES

During the 3-year pilot:
27 courses have been adapted

Students have earned an average of 12 college credits through the program, outperforming comparable students in traditional manufacturing courses

40% of students plan to complete an associate's degree in manufacturing at OCTC, in another field at OCTC, or to pursue a degree at another college.

FUNDING

National Science Foundation Advanced Technical Education grant, state customized training funds, employer contributions

KEY PARTNERS

Owensboro Community and Technical College

Jobs for the Future

15 Manufacturing Employers in Kentucky and Indiana: Aleris; Boardwalk Pipeline Partners, LP; Castlen Welding and Manufacturing; Crop Production Services; Domtar Fine Paper Mill; Horn Industrial Services; Kimberly Clark; Metalsa Structural Products; OMICO Plastics; Specialty Foods Group; Sun Windows; Toyotetsu Mid-America LLC (TTMA); Trifecta Steel; UniFirst

WGBH Educational Foundation

ABOUT THE PROGRAM

Manufacturers around the country are having increasing difficulty meeting their talent needs. In 2015, 60 percent of skilled manufacturing positions were unfilled because of the lack of qualified workers.[1] Manufacturers throughout Owensboro, Kentucky's regional labor market commonly hire students before they graduate from the Owensboro Community and Technical College's (OCTC) manufacturing programs. Although a technical community college degree can provide individuals with significant assistance in both securing a job and advancing in their careers, working adults face numerous barriers to completing community college. Full-time workers who do attend community college have a graduation rate of 8 percent, compared with 20 percent for other students.[2]

Work-based courses are an innovative way to give incumbent workers access to community college credits and degrees. They are community college courses that have been redesigned in partnership with employers so that competencies are taught not only in the classroom or lab but on the job itself. The students are enrolled for credit at the college but identify as workers who are learning on the job. Work-based courses are jointly developed by community colleges and employers and are adapted to meet employers' specific needs for skilled workers.

In work-based courses, OCTC is embedding on-the-job training in existing credit-bearing technical courses to give workers the opportunity, at work and in class, to learn the technical skills and academic knowledge they need to progress toward a two-year degree and a higher-skilled, higher-wage job with their current employer.

KEY FEATURES

- Workers take college-level technical courses that maximize on-the-job learning
- Work-based course students are working toward a two-year degree, a promotion, or both
- Employer pays wages and often pays full cost of the courses
- Flexible option for increasing workers' technical education quickly and serving employers' needs

Work-Based Courses:

- Integrate the classroom and workplace by formalizing instruction that happens during work
- Reflect the unique production needs of a company because teaching happens on the job
- Fulfill program requirements for a community college certificate or degree

Work-based courses combine hands-on skill building with academic instruction to meet the training needs of employers and the skills and educational needs of workers. This improves workers' performance in a current job or prepares them for a higher-skilled, higher-paid job with the same employer.

1. Deloitte and the Manufacturing Institute. The Skills Gap in U.S. Manufacturing: 2015 and Beyond. 2015.
2. Hoachlander, G., Sikora, A.C., and Horn, L. (2003). Community College Students: Goals, Academic Preparation, and Outcomes. National Center for Education Statistics. 2003.

BUILDING THE TALENT PIPELINE BY ADVANCING LOW-SKILLED WORKERS

Work-based courses provide career-advancement opportunities for lower-skilled incumbent workers and jobseekers, a population that historically has had challenges accessing traditional college programs. Employers value work-based courses because they are tools for developing incumbent workers who lack the skills and training to advance and for building a talent pipeline within the company. Incumbent workers gain access to skills training and a path to an academic credential.

Work-based courses are also a valuable mechanism for hiring new employees and giving them rigorous academic training in a format that is tailored to the employer's production processes and skill needs. These courses provide content that can be built into a variety of program structures. GO FAME is an example of a program structure that allows jobseekers access to a degree program comprising mostly work-based courses.

GO FAME: A Work-Based Degree for New Employees

Greater Owensboro's chapter of the Kentucky Federation for Advanced Manufacturing Education (GO FAME) allows employers to recruit and train new employees who can complete an associate's degree in OCTC's Advanced Manufacturing Technician track primarily through work-based courses. In this program, jobseekers simultaneously enroll in OCTC and are hired by a local manufacturer. The close collaboration between the college and local employers meets workers' needs for training and well-paid jobs and employers' needs for skilled workers and a talent pipeline.

Integrating Classroom and On-the-Job Learning

Work-based courses integrate classroom and on-the-job learning in a way that no other type of work-based learning does. They are community college courses co-designed and co-taught by college faculty and employers so that academic course learning objectives are mastered both in the classroom and on the job itself. For lower-skilled workers, work-based courses are an opportunity to work while gaining skills to advance their careers and earning college credit toward a manufacturing degree.

OCTC faculty members and administrators work with employers to identify existing manufacturing technology classes that align with in-demand skills and competencies. OCTC and employers then work together to incorporate employer-specified skill requirements in existing academic courses' learning objectives. The final step in adapting the class to a work-based course format is to jointly determine which of those skills can be learned and practiced through employer-provided training on the job, and what learning objectives should be taught through classroom- and lab-based instruction. Work-based courses are co-taught by college faculty and employers, with classroom training occurring at the college and on-the-job training provided at the workplace.

FLEXIBILITY

One of the benefits of work-based courses is their flexibility to either stand alone or be combined into a longer work-based course program. While work-based courses are typically one semester, they can be broken down into smaller modules to better fit company schedules. Students can participate in education and training through work-based courses for as little as one course or as much as two years, depending on the needs and partnership of the employer. OCTC has frequently addressed employer requests to run the courses in nonstandard terms, whether starting in October and ending in March, or compressing them into fewer weeks than normal semesters.

Work-based courses are a flexible way for students to gain key credentials and advance on a career path. In addition to gaining college credit, or a complete associate's degree, students can also earn industry-recognized credentials because some of OCTC's work-based courses are aligned with national certifications such as the Manufacturing Skills Standards Council, National Institute for Metalworking Skills, and the American Welding Society.

Work-based courses also give employers the flexibility to promote and advance workers in a variety of ways: employers might guarantee their incumbent workers promotions or pay raises at different stages of their participation in the work-based course program, and most companies intend to hire the workers they sponsor for work-based course associate's degrees for permanent positions upon graduation.

Seven Principles of Effective Work-Based Learning
JFF has identified seven principles that support low-skilled youth and adults seeking to enter and advance in careers. Together, these principles encourage the design of work-based learning models that increase access to work-based learning, provide participants with key training and work experience, and help employers meet their needs for a skilled workforce.

Each of the case studies in the Work-Based Learning in Action series highlights a program that is an innovative example of one or more of the principles at work.

Effective work-based learning programs should:


Support entry and advancement in a career track


Reward skill development


Provide meaningful job tasks that build career skills and knowledge


Support college entry, persistence, and completion


Offer compensation


Provide comprehensive student supports


Identify target skills and how gains will be validated

Support entry and advancement in a career track

Work-based courses bolster entry and advancement in the manufacturing technician career track by helping both incumbent workers and jobseekers acquire the critical skills and competencies that are most in demand by employers. OCTC offers these courses to employers who typically come to the college for customized training to advance their workforce. Many participants worked at their company for a number of years and noted that work-based courses have offered them an opportunity to enter a career or position they could not have otherwise. The model has now also expanded to workers new to manufacturing, providing them jobs they would otherwise not qualify for.

Support college entry, persistence, and completion

The work-based course model recruits students from work and allows them to fulfill job responsibilities simultaneous with their education, helping increase entry to, persistence in, and completion of postsecondary programs of study. The average age of incumbent workers in OCTC's work-based courses is 44, and 72 percent do not have a college degree. They do not enroll because they had planned to pursue college, but because this is a training opportunity available through their employer. The courses then provide a gateway to college, as these workers earn, on average, 12 academic credits toward an advanced manufacturing associate's degree. Workers enrolled in these courses have earned higher grades on average than students enrolled in traditional courses, even after controlling for key variables such as student age and course difficulty. Work-based course participants earned a grade point average (GPA) of 3.89, while students in OCTC's Advanced Technologies program had an average GPA of 3.46. Further, after completing their work-based course, approximately 26 percent of incumbent workers plan to complete an associate's degree in manufacturing at OCTC, in another field at OCTC, or to pursue a degree at another (usually four-year) college.

Identify target skills and how gains will be validated

The work-based course model includes a clear articulation of skills to be attained and a process and method for validating skills attainment. These are existing community college courses that have been approved by faculty senates and vetted by industry advisory boards. The work-based courses have the same types of classroom materials such as a course outline and syllabus for students as their traditional counterparts.

Learning is assessed both in the classroom and on the job. Classroom assessments include homework and tests, and assessments of mastery of the competencies gained at work include standard rubrics such as a skills-performance checklist. The on-the-job evaluations are completed by employer supervisors and designed to be simple and consistent with company documentation, such as company worksheets indicating who is qualified to operate which machinery.

Provide Meaningful Job Tasks

As employees of manufacturing companies, work-based course students are assigned the same tasks and have the same responsibilities as other technicians at these companies. The additional learning on the job is particularly meaningful because it is focused on skill areas most needed by their companies.

Reward Skill Development

Work-based courses recognize and reward skill development by granting college credit. The combination of customization and credit within work-based courses is possible because the Kentucky Community and Technical College System permits colleges to adapt up to 25 percent of the content of individual courses and still grant credit. The courses not only provide experiential or other general academic credit, but, since they are technical courses, they also fulfill requirements for manufacturing certificates and degrees. Employers sponsoring multiple work-based courses can create programs that help their workers earn a greater portion of their degree in this format.

ROLE OF EMPLOYERS

On-the-job training and the active role of an employer supervisor distinguish work-based courses from their traditional community college counterparts. Employers are involved throughout the program, from helping adapt course competencies for work-based instruction to delivering that instruction and assessing student mastery. To date, OCTC has worked with 15 employers to adapt 27 courses (covering topics like blueprint reading, circuits, fluid power, machine tools, and programmable logic controllers) to the work-based model. Another central role of employers is to compensate workers.

Offer compensation

Participants are compensated for their work while they are enrolled in work-based courses, addressing a major barrier for many workers to attaining a college degree. Work-based course participants are paid the same wages that other employees receive; their wages are not reduced or discounted. All the employers training incumbent workers have paid their work-based course tuition. Some employers also pay OCTC tuition costs for the new employees they hire and enroll in a work-based course program, while others ask students themselves to cover these costs.

In introducing the work-based course model, OCTC and their partners addressed several challenges and learned a range of lessons about what it takes to implement this new model.

LESSONS LEARNED AND KEYS TO REPLICATING THE MODEL

Significant employer involvement required in new roles: Work-based courses require more employer involvement at multiple levels—company leadership, training and human resources staff, and the worker's supervisor—than many other forms of training provided by community colleges. OCTC had to secure employer interest in taking on such an active role, worked closely with them to identify employees with some of the critical skills needed to provide instruction, and then worked with JFF to prepare supervisors to be mentors and instructors for the participants.

Employer-college communication: Keeping lines of communication open between supervisors and community college staff is essential, given the many demands on supervisors' time. Community colleges can provide simple assessment forms to get input from supervisors at key points in the course. They actively encourage students to share their experiences on the worksite with their classroom instructors so that instructors can customize courses to reflect this feedback.

Cost: The model is more expensive than a traditional class because it requires customized design for each cohort and ongoing collaboration between the community college and companies. It helps to identify external sources of support, such as state-level training funds, that can offset the tuition cost for employers and students.

Strong ties with employers: Strong relationships with manufacturing employers are also essential prerequisites for developing work-based courses. Given the central role of employers in work-based courses, this model will be extremely challenging to launch unless the college already has an understanding of the regional manufacturing economy and trusted, collaborative relationships with local employers that are prepared for, and enthusiastic about, their active engagement in delivering work-based courses.

Institutional flexibility: Flexibility in designing and developing curricula, allocating funding, and other forms is an underlying attribute that can help launch a new model such as work-based courses. Colleges and program administrators should work to identify the points of flexibility as they consider adopting work-based courses at their institutions.

WORK-BASED COURSES TOOLKIT

To aid community colleges in replicating the work-based course approach, JFF has designed *Work-Based Courses: Bringing College to the Production Line*, a multimedia professional development toolkit. The tools draw on OCTC's program needs and the lessons being documented during the development of their work-based courses.

The toolkit guides colleges through each phase of work-based course design and implementation:

- Understanding the model and institutional readiness
- Institutional preparation
- Course design and curriculum development
- Faculty and supervisor training
- Course delivery, including instructional strategies
- Linking workers to community college

The tools include templates that employers, either supervisors or other learning mentors, can use for teaching and evaluating the work-based learning portion of the courses. JFF has also designed professional development workshops to prepare both faculty and employers for their co-instructor roles in delivering work-based courses, and supporting materials are available in the toolkit.

To learn more, access the toolkit at www.jff.org/workbasedcourses

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This case study is part of a series of publications exploring effective and inclusive models of work-based learning. For the other publications in the series, see "Making Work-Based Learning Work" and "Work-Based Learning in Action," a series of case studies, at www.jff.org/publications.

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