



Christine Carpenter | Vice President of Engagement, CAEL

# 50 Years On, Innovation Is Going Strong: Bismarck State College and Workforce Learning



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**As many colleges are attempting large-scale distance education for the first time, it's important to learn the unparalleled value of forging and maintaining close relationships with students and industry partners.**

Since at least 1970, Bismarck State College (BSC) has been modeling a best practice for serving working adult learners: close collaboration with key industry. That's when BSC's long history with the energy sector began. The continuous expansion of that relationship since has beneficially blurred the lines between theory and practice, worker and learner. This has led to a host of innovations aimed at working adult learners and the companies that depend on them. I spoke with Bruce Emmil, Dean of BSC's National Energy Center of Excellence (NECE), and Alicia Uhde, a department chair at NECE. They shared examples of how BSC, a CAEL institutional member, meets the ever-evolving needs of working adult learners. From an online learning program that is the envy of many face-to-face classes to BSC's embrace of corporate training and other experiential learning, these initiatives truly exemplify what it is to meet working adult learners where they are and get them where they need to be.

Back in 1999, BSC used a small grant to offer online platforms for six of its power plant courses. About 100 students throughout the country quickly enrolled. Many of them were workers hoping to use the courses to broaden their skills within the industry. Around the same time, BSC began working with the Energy Providers Coalition for Education (EPCE), a CAEL initiative dedicated to supporting the utility industry's workforce needs. It also began conducting prior learning assessments (PLA) based on CAEL-established best practices. Hearing multiple industry requests to expand

its energy program, BSC realized it was outgrowing its physical campus space even as it was launching what would become a world-class online environment. In 2006, the college built a dedicated facility for its energy program, which became the NECE. In recognition of BSC's legacy expertise and continuing innovation in the sector, the U.S. Department of Energy designated BSC as the National Power Plant Operations Technology and Education Center, the only facility so recognized in the country.



But BSC wanted to ensure all learners received a world-class educational experience, whether at the NECE, online or somewhere in between. For distance learning, the challenge was transmitting highly technical education training online. It began with taking thousands of photos from energy operations and plants and using them to connect theory to practice through visualizations of power plants and their components. Looking to avoid what Bruce describes as “death by PowerPoint,” course designers added animations and interactive exercises that allowed distance learners to see inside detailed equipment and systems. BSC’s online energy programs continuously built on this foundation. They now feature full simulations of entire power plant systems, including wastewater plants and nuclear reactors. Today, BSC offers more than a thousand of what it terms interactive learning tools (ILTs).

Bruce says ILTs have been a breakthrough for BSC’s energy programs. Traditionally, the only time students could see a plant’s inner workings was when they were shut down for maintenance. Thanks to the ILTs, some of which include 3D renderings, learners can immerse themselves in the interactions of complex systems without conflicting with “real world” operations—or their own schedules. Although the finished product offers hands-on experience from the convenience of a virtual environment, it requires a lot of effort from faculty behind the scenes. They conceptualize the content and review output to ensure accuracy. They also incorporate ideas from industry, which often requests new features. Some energy companies have even licensed ILTs to enhance their own training resources. Their popularity has prompted face-to-face courses at BSC to incorporate them as well.

Whether coursework is online or in a classroom, it is one of many responsibilities competing for the limited “free” time available to working adult learners. In the energy sector, employees’ work extended to stretches of overtime during shutdowns and overhauls, often in the spring and fall. Traditional scheduling could put an entire semester or quarter off limits. To accommodate these students, BSC offers flexible, block-style scheduling, which allows them to get in a class or two before a shutdown, pause for a six-week period (or more), then resume their studies. In addition, BSC’s online courses are asynchronous, and all this flexibility is just as welcome by adult learners facing demands on their time other than plant

shutdowns. That’s even more apparent during the upheaval caused by COVID-19 shutdowns.

Each BSC online energy student has a professional staff advisor well versed in energy program offerings as their main point of contact at the college. Alicia calls this level of one-on-one support critical to online students’ success. Through the admissions process, students inform BSC what company they are employed at, what position they currently hold and if they are completing a corporate training program. This process initiates personal communication from the advisor to the student, including a customized education plan based on the employer and their established training requirements. Advisors are familiar not only with the course work required for degree programs but with many other factors that go into a customized education plan, such as work schedule, tuition reimbursement options and review of transcripts for possible technical credits that may be applicable to the student’s training program or degree. By getting to know each student’s goals—whether corporate training, degree completion, or both—the student sees it as one integrated educational journey. Many corporate training programs give students the initial credentials recognized by their employer and BSC allows those credentials to translate into a degree pathway.

In addition to twelve energy specific programs, BSC offers a customizable technical studies option where they recommend focusing on two technical study areas. Students (and employers) have great flexibility in creating combinations that best fit their needs. As one example, an EPCE member company wanted to upskill instrument technicians at a hydro power plant. They combined BSC power generation and instrumentation courses to meet the demand. Because BSC has such a wide offering of technical energy content, they can customize courses to fit nearly any need, from apprentice training to continuous training for incumbent workforces. As I mentioned earlier, this can dovetail with degree programs, which creates a great benefit for employees and a retention and recruiting tool for employers. The “choose your own adventure” approach is clearly popular with students as well. BSC boasts a course completion rate as high as 90 percent in specific technical programs.

Maintaining a tightknit relationship with industry requires constant engagement. Access to the industry through the

EPCE coalition supports building relationships, but many BSC faculty also come from the energy industry. Adjunct faculty generally work concurrently in the industry. They often express their passion for their career through teaching. Alicia says faculty relationships with employees and employers add to the “real time” awareness of industry challenges and opportunities at BSC. And she cites the adult learners themselves. From novice workers completing training to advance their careers to seasoned veterans returning to get the degree they always dreamed of, they too have valuable experiences to share. Fellow students learn from them. In the process, they play their own role in keeping curricula up to date.

BSC also meets regularly with industry representatives. These meetings range from local informal engagements to the industry advisory committees attached to each program to national coalitions like EPCE. Bruce says a recurring theme among these convenings is industry’s determination to stay in front of the rapid changes affecting their workforces. As he explains it, even though some positions are going away, that doesn’t mean those employed in them have to. By working closely with education partners like BSC, companies can

help employees adapt their skills as technology retools job descriptions.

BSC has been able to implement consistent, effective and easily accessible training across multiple worksites and large corporate footprints. Bruce and Alicia say that’s been the biggest reason for BSC’s success in corporate training partnerships. But Alicia explains there can be some diplomacy required when engaging corporate partners. With a robust PLA program, BSC is well versed in reviewing transcript credit and recognizing potential credit-bearing material. It can show companies where their internal training best aligns with coursework. Rather than BSC trying to “take over” what a training division is doing, it approaches it as a partner. BSC typically focuses on theory training, so the companies can address the procedures particular to their organization.

BSC’s work with the electrical and nuclear power industries is a great example of how effective this complementary and transparent approach has been. Plants go through a training accreditation process similar to what colleges do. For example, there is a body that reviews nuclear plant training to ensure curricula are up to date. When committees review content



that is part of a BSC nuclear power technology program, they can examine the material online and request content updates. That seamless access makes a critical, complex regulatory process much more efficient.

The innovations I've described would help working adult learners at any time. I think their impact will be even greater as the COVID-19 pandemic forces all of us to be more agile and adaptive. As I thought about what we can all do to improve outcomes for adult learners, I was struck by something Alicia shared during our conversation. When I asked her what most sets BSC apart, she cited the adult students themselves and their passion for learning. That is a product of the direct,

tangible connection between BSC's high-quality technical coursework and career advancement. While BSC has been forging these connections since 1970, there are countless additional pathways to be established in 2020 and beyond. When industry and education come together to do so, they are sure to end in success.

*It's always a pleasure for me to write about the great work CAEL institutional members like Bismarck State College are doing for working adult learners. To share your own success story or become a CAEL member, please contact [membershipservices@cael.org](mailto:membershipservices@cael.org).*



Christine Carpenter is the vice president of engagement at the Council for Adult and Experiential Learning (CAEL). Her responsibilities at CAEL, which she joined in 2007, include leading membership representing higher education institutions, employers, organizations and individuals and employer-education initiatives in support of CAEL partnerships. In this capacity, she serves as director of the Energy Providers Coalition for Education (EPCE) and executive director of the National Alliance for Communications Technology, Education, and Learning (NACTEL).

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Recognizing that adult learners are the backbone of the U.S. economy, CAEL helps forge a clear, viable connection between education and career success, providing solutions that promote sustainable and equitable economic growth. CAEL opens doors to opportunity in collaboration with workforce and economic developers, postsecondary educators, and employers, industry groups, foundations, and other mission-aligned organizations. By engaging with these stakeholders, we foster a culture of innovative, lifelong learning that helps individuals and their communities thrive. Established in 1974, CAEL, a Strada Education Network affiliate, is a nonprofit 501(c)(3) membership organization.