



PATHWAY TO SUCCESS PROJECT EVALUATION

FINAL REPORT

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Completed by Woodke360 Consulting

Evaluation Team Members:

- Leah Woodke, PhD
- Larry Graf, MBA
- Daniel Driessen, M.Ed.

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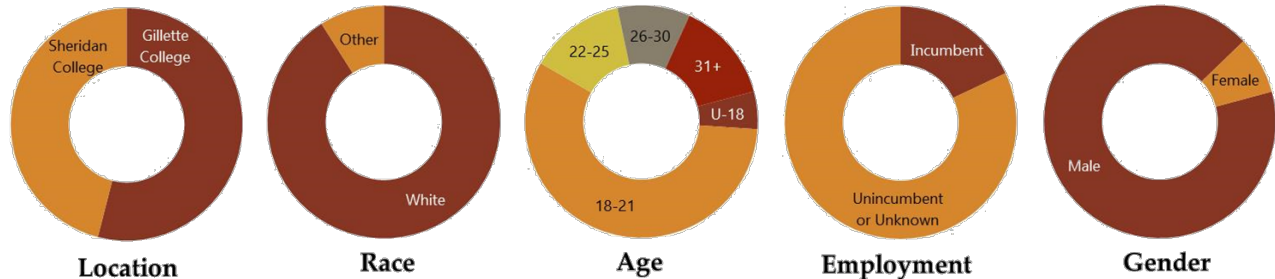
PATHWAYS TO SUCCESS PROJECT EVALUATION

EXECUTIVE SUMMARY

The Pathway to Success project proposed six major strategies to better meet workforce needs in northern Wyoming. These included 1) modifying programs to better meeting industry needs and address the needs of adult learners, 2) advising CTE students to improve the probability of success, persistence and placement, 3) using pre-assessments to improve readiness, confidence and the ability to complete, 4) strengthening programs and delivery with online and technology enabled learning, 5) supporting CTE faculty as they migrate to online and technology enabled learning environments, and 6) expanding the college's credit for prior learning options for CTE students with emphasis on credit for prior learning for military experience.

PROJECT OUTCOMES SUMMARY

Project participants were primarily unemployed younger white males.

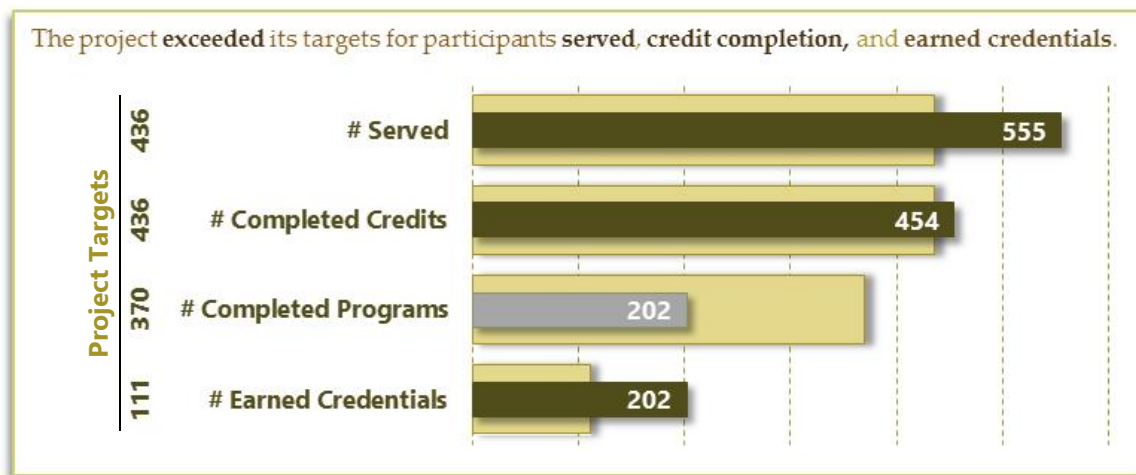


See page 10 of the full report for more detail.

Project deliverables were completed on time and within budget.

- Place-based and web-based technologies were integrated into CTE classes to support teaching and learning.
- CTE Advising Manual was developed to describe case management approach to supporting CTE students.
- Credit for Prior Learning (CPL) was revised to be more explicit about processes and include options for Military Credit for Prior Learning (MCPL)
- Career Placement Strategy was developed through “cradle to grave” approach by the NWCCD Advising Department.

The project exceeded most of its targets for student outcomes.



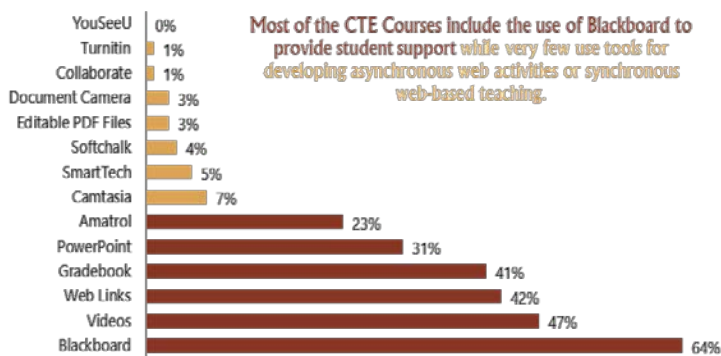
There are still 282 students who remain enrolled after the end of the project performance period, of which 75% are expected to complete in the coming few semesters. Outcomes for employment, retained employment for incumbent workers, and wages were inconclusive because data was incomplete and only available in aggregate from the Wyoming Department of Workforce Services. (See page 11 of the full report for more detail.)

PROJECT HIGHLIGHTS

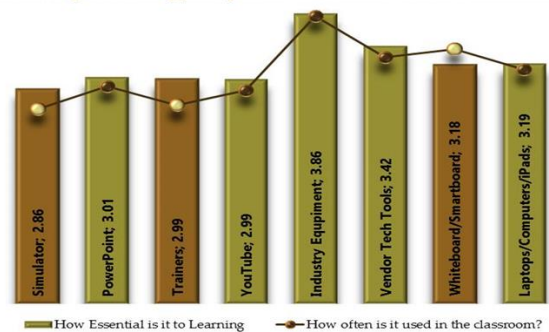
Strategies were developed to help students succeed in math

- A Math Boot Camp was piloted to help students better prepare for Math 1500 with promising results.
- Math 1500 was redesigned to include contextualized activities and content related to CTE programs.
- Formalized tutoring was provided by the instructor to students who struggled in Math 1500.

Increase in technology use in CTE classrooms has helped to support teaching and learning



According to students surveyed, technology that is more valued by them is typically used more often in the classroom.



Blackboard helps students access their grades and monitor their own progress. It also helps the instructor to provide handouts and lecture notes that students can access after the class period or if they have to be absent. While they don't think CTE courses should be offered online, many would appreciate general courses offered online to better accommodate their schedules. Students value the use of various technologies in the classroom such as simulators, vendor technology tools, trainers, and industry equipment to support their learning in the CTE classrooms.

Advising and coaching is highly valued by CTE students.

CTE students and faculty at Sheridan College like to have the CTE Advisor come to them and help them to register for classes and coordinate education plans. They also like the CTE Advisor to be involved in helping students when they experience challenges that threaten to get in the way of their academic success. CTE students and faculty at Gillette College appreciate the CTE Advisor helping students when they enter the college and help them transition to the CTE faculty for continued advisement. The CTE faculty at Gillette College typically like to assume the responsibility for coordinating education plans and helping students with various challenges if they arise once the student is in their program.

Student achievement, persistence, and completion were exceptional.



ACTIONABLE INSIGHTS

Continued Instructional Design (ID) support for faculty is necessary to continued growth in technology use to support teaching and learning

CTE faculty at NWCCD, like at many other campuses, are highly skilled and well-experienced in their trades and industries. They typically have little experience in academia. The faculty at NWCCD have appreciated the assistance in developing lesson plans, learning about different teaching strategies to meet the needs of adult learners, and guidance in integrated technology to support teaching and learning. Place-based technology such as simulators, trainers, and other equipment help students learn skills of the industry in lab situations. Web-based technology helps students to keep up with assignments, monitor their grades, submit and track assignments, and access additional learning resources.

The District should continue to gather evidence related to the value of ID services at the institution. An external evaluation was used to determine impact of ID thus far and assess continued need. It is important that faculty understand how to use the technology to more effectively support teaching and learning. As the District continues to work toward improving its academic and support services for students, it will be important to establish standards for look, feel, and function of the LMS. Currently, students get confused about where things are in each of the courses. Different instructors file course elements in different places. For example, assignments might be kept in the calendar for one course and in a course resources section in another course. Students need predictability so that the technology *enhances* their learning experience rather than getting in the way of it. This is especially important if the District moves to a different LMS due to state led efforts.

Assuming the District following the above recommendation, it is important to determine the role and placement of Instructional Designer. Will the instructional designer's role lean toward technical support in using the course tools within the LMS? Or will the instructional designer's role be more of an instructional coach who helps instructors teach better in multiple environments? Once the role of the Instructional Designer has been defined, the institution will need to determine where that position fits organizationally.

Continued development of the advising processes for CTE students through ongoing evaluation

Projects like TAACCCT grants allow college to implement and evaluate new strategies and innovations. When funding is over, these innovations often lose momentum and support. It is important to measure their impact on an ongoing basis. The Institutional Research, Advising and CTE departments should share the responsibility for data analysis for decision-making. Monitoring and evaluation are important aspects to improving, sustaining, and scaling strategies and innovations that show promise.

Ongoing study of ways to support students in math achievement

Math is a gatekeeper for many students. Only about 12% of CTE students who enroll in developmental math complete their degrees at NWCCD. Approaches like the math boot camp may have some merit in improving student success with math. The Friday Math Forum and contextualizing to support student achievement in Math 1500 also have merit.

PATHWAYS TO SUCCESS PROJECT EVALUATION

DETAILED REPORT

OVERVIEW OF PATHWAYS TO SUCCESS PROJECT

INTRODUCTION

The Pathway to Success project is a round three Trade Adjustment Assistance Community College and Career Training (TAACCCT) project that was funded by the Employment and Training Administration of the Department of Labor (SGA/DRA PY 12-10). The grantee is Northern Wyoming Community College District (NWCCD). NWCCD is comprised of two distinct campuses, one in Gillette, Wyoming and the other in Sheridan, Wyoming. All credits are awarded from the college district so students can take any class offered at either college.

Pathway to Success was designed to provide short term training focused on supervisory foundational skills and enhance existing programs using

technology and targeted advising strategies. The Pathway to Success project included six major strategies to better meet workforce needs in northern Wyoming. These included 1) modifying programs to better meeting industry needs and address the needs of adult learners, 2) advising CTE students to improve the probability of success, persistence and placement, 3) using pre-assessments to improve readiness, confidence and the ability to complete, 4) strengthening programs and delivery with online and technology enabled learning, 5) supporting CTE faculty as they migrate to online and technology enabled learning environments, and 6) expanding the college's credit for prior learning options for CTE students with emphasis on credit for prior learning for military experience.



Figure 1: Amatrol Simulator

PROJECT EVALUATION

Approach to Project Evaluation

The external evaluation was conducted by Woodke360, led by Dr. Leah Woodke. The evaluation utilized a mixed methods approach that was both formative and summative. Evaluation of the project implementation utilized the logic model framework provided below as a guide for data collection and analysis. The logic model served as a basis for identifying and monitoring the project components (inputs and activities) to indicate progress toward desired outputs, outcomes and impacts. Outcome evaluation utilized a quasi-experimental non-equivalent group design with a comparison group identified from students who attended NWCCD prior to the project.

Qualitative Methodology

A variety of qualitative data collection strategies were utilized in an effort to offer various stakeholders opportunities to more fully share their perspectives and experiences and tell a richer story. In this way, the culture and goals of the college and of the project were made more explicit.

Reaction data was gathered from participants and key stakeholders to gain their perspectives regarding project activities and inputs. Reaction data was collected using focus groups, surveys, and interviews. Interviews with faculty, college administration, and project staff provided information about how programs were designed, delivered, and administered. These also provided information about other supports and services that were offered. Anecdotal data from quarterly reports and meetings provided information about challenges and successes regarding the work plan. Project artifacts, including manuals and other documents, evidenced activity completion or progress toward completion.

Quantitative Methodology

Pathway to Success program participant outcomes were measured by employing a quasi-experimental design, one structured similar to pretest-posttest randomized experiments, however, lacking the key feature of the randomized designs, i.e., random assignment.

Essentially, the purpose was to determine if evidence exists for a causal relationship between the dependent (student outcomes) and independent (treatments) variables.

In quasi-experimental designs, because participants are not assigned to treatments at random, the treatment and control groups will differ even before the treatments are administered. The fundamental question is whether observed changes can be attributed to the treatments and not to other possible causes.

To address this issue, treatment and comparison group members are required to be as similar as possible. The basic notion is to match participants in the treatment group to those in the control group who are similar in all relevant characteristics. To accomplish that match, the propensity score matching procedure using Stata was employed. Once matching was complete, the treatment effect was estimated by directly comparing outcomes between treatment and control participants.

The control group included students enrolled during the Fall of 2012, prior to the TAACCCT-funded project. These enrollees were also located on the Gillette and Sheridan Wyoming campuses. During the Fall of 2012, 66 total new NWCCD students were enrolled, of which 61 were in the Diesel Technology, Machine Tool Technology, HVAC and Commercial Apprenticeships, Engineering, and Welding programs.

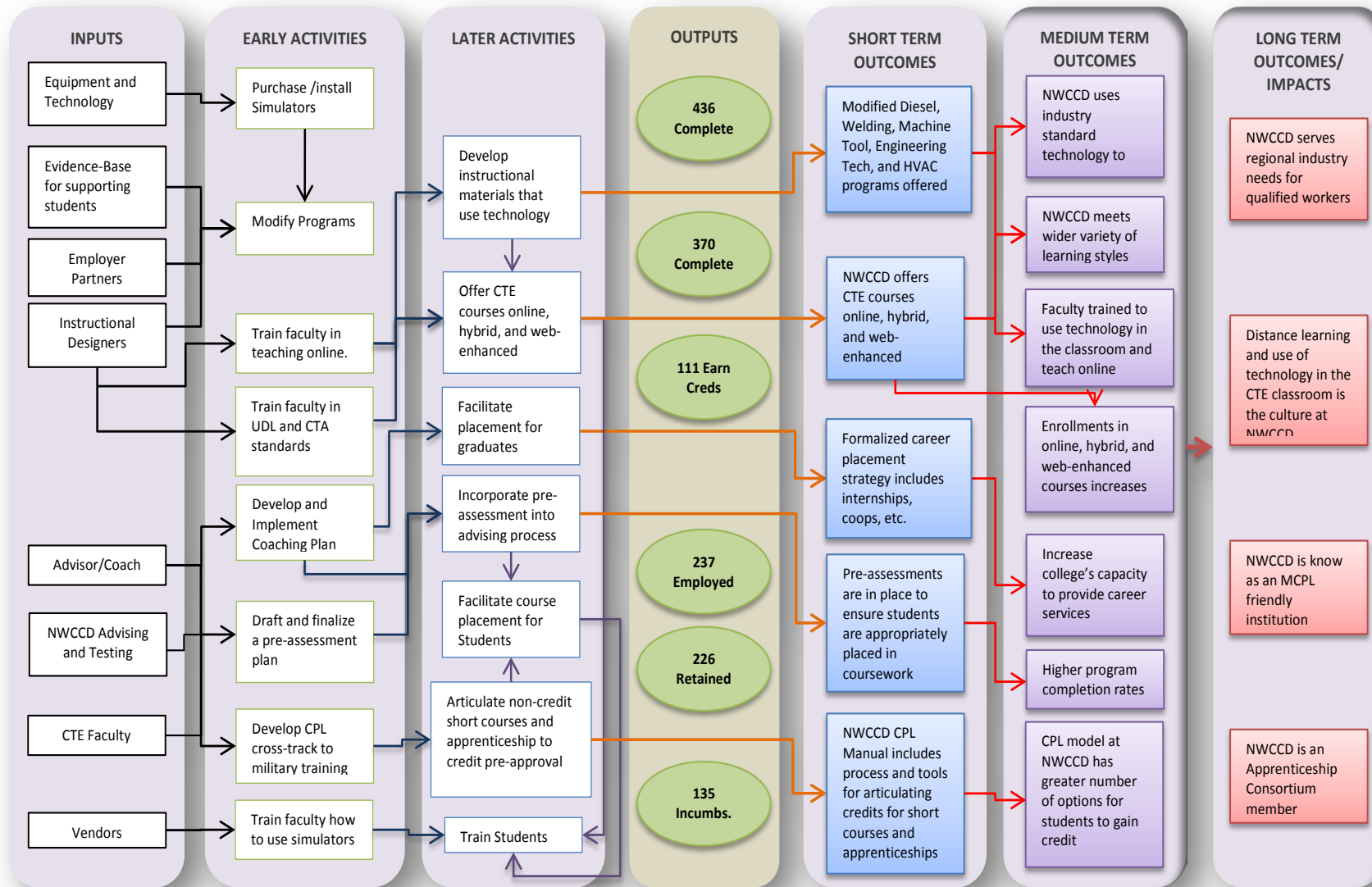


Figure 2: Pathway to Success Project Logic Model

Project Evaluation Activities Timeline

The evaluators worked closely with the project director in developing relevant data collection tools as appropriate. All required and relevant data, including any personally identifiable data, was securely provided to the third party evaluators.

The evaluation team conducted onsite visits at least annually. The site visit in the first year included clarifying project objectives, revising the logic model, and firming up the evaluation plan.

In the second year, the team met with project personnel and interviewed CTE faculty and employer partner representatives. A student focus group was held on the Sheridan College campus. The focus group utilized a semi-structured interview process. The focus group process included an activity in which participants were asked to share their perspectives of various modes of technology used in the classroom as well as their perceived impact of those technologies on their learning. Participants were asked to rate their perspectives using sticky notes on a chart and provide an explanation about their ratings. In addition, the project reviewed relevant project documentation.

In the third year of the project, the local economy changed drastically. The mining industries, which were the main employers in the region, began to experience multimillion dollar losses. By 2016, there had been over 500 mine workers laid off. This changed the economic climate and workforce needs in the region. The evaluation team worked onsite with the project leadership to determine an appropriate response to the developments and target the emerging workforce needs. An additional onsite visit was conducted later that year. During that visit, information was gathered through interviews with key personnel, a review of relevant documents, and data collected from the college's student information system.

A final onsite visit was conducted in May of 2017, in the final year of the project. Interviews were

held at both campuses with project leadership, college administration, and other key personnel. In addition, student focus groups were conducted at both the Sheridan and Gillette campuses.

The data collected through the evaluation process contributed to project quarterly reports and annual reports submitted to the US Department of Labor, Employment and Training Administration (DOLETA) as part of the reporting requirements. In addition, the third party evaluators provided formative information in the form of annual evaluation reports to the project so they could be used to inform ongoing project decisions.

Evaluation Limitations

Some limitations in this evaluation exist:

- The evaluation is designed to measure impact in a specific college within a rural location. Lessons learned may not be generalizable to other institutions.
- There may be other factors absent from the data collected affecting the outcomes.
- Some data collected from participants was self-reported and voluntary.
- The principal limitation in measuring the Pathway to Success program outcomes for the propensity score matched treatment and control groups relates specifically to the small sample size (n=66 for each group) and "unobserved" characteristics that may have affected outcomes. These "unobserved" characteristics include, but are not limited to, participant employment status and participant wages at program start. Unfortunately, this information, in most cases, was unavailable and/or unreliable.
- Collection of employment and wage data was available in aggregate only by the Wyoming Department of Workforce Services. However, every effort was made by the District, Lead Evaluator and Quantitative Researcher to obtain all data pertinent to the project.

PROGRESS TOWARD INTENDED PROJECT TARGETS

PARTICIPANT DEMOGRAPHICS

There were 555 participants served by the Pathways to Success project at NWCCD. Approximately 92% (510) of the participants were male. Ninety-one percent (505) of the participants were Caucasian and the others were Native American/Alaska Native (2.9%), Hispanic (4.9%), Asian (0.5%), and African American (0.7%). Most of the participants were typical college aged, between 18 and 21 years of age. However, 14% of the participants were aged 31 or older. The project served 12 veterans of military service. There were 3 participants who self-reported to have disabilities. There were 100 participants who indicated they were incumbent workers at the time of enrollment. Just over half (54%) of the participants were enrolled at Gillette College. Approximately 75% of the project participants enrolled in the Diesel, Machine Tool, Welding, Engineering, and Welding programs at both Gillette and Sheridan Colleges.

Most of the participants (57%) were of typical college age.

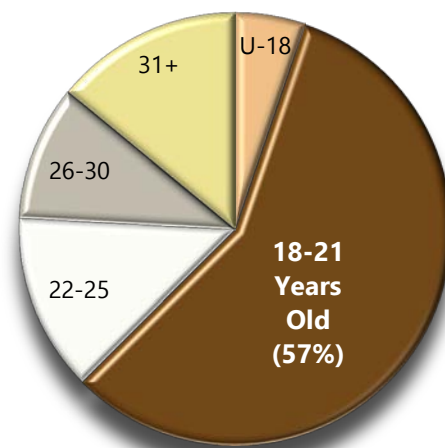


Figure 3: Pathways to Success project participant age ranges

PROJECT DELIVERABLES COMPLETED

There were four main project deliverables in the Pathway to Success project. The first was syllabi that provide evidence of how the technology was used in the classroom developed by the CTE faculty. The syllabi were to include how the simulators and other place-based equipment purchased by the project were used as well as how web-based technology, particularly the college's LMS was used to support student success.

The second deliverable was the CTE Case Management Handbook. The CTE Case Management Handbook describes strategies the college has found to be useful with CTE students. This handbook has been developed in conjunction with the third deliverable, the CPL Manual.

The CPL Manual was a revised version of NWCCD's original CPL manual, but more clearly outlines CPL options for students. It includes newly developed military credit options. Both of the manuals have been reviewed by the Advising

department and Veterans Services department. These departments expressed appreciation for greater clarification of the processes.

The fourth deliverable was a career placement strategy. NWCCD does not currently have a career placement office. However, the Advising Department at NWCCD views its role as advising from "cradle to grave." This means that it works with students coming into the college as well as when they complete their programs of study to help them enter employment. Intentionally advising CTE students with the goal of "off boarding" students into a technical career is the career placement strategy deemed appropriate for the district. One way the department has promoted career placement is to coordinate a career fair. CTE-specific matriculation strategies are provided for students interested in further education upon completion rather than immediate career placement.

PROJECT TARGET OUTCOMES

Project Enrollment

The Pathways to Success project exceeded many of its projected targets for enrollment and student achievement. The project anticipated it would serve 436 participants over the life of the grant and that all of the participants would complete credits. The project served 555 participants, exceeding its target of 436 by over 25%. Although not all of the project participants completed credits as projected, there were 454 project participants who completed credits, exceeding its target of 436 by 4%.

Completion and Earned Credit

The project projected that 370 participants would complete programs of study. While there were just 202 completers, there were still 282 participants who remained enrolled in programs of study at the end of the project performance period. If the completion rate of 75% holds, an additional 211 students will likely complete their programs of study in the coming few semesters. Notably, all 202 of the participants who completed programs of study earned credentials. The project anticipated that there would be 111 participants who would earn credentials. The project reached almost double its target (202) for number of participants who earned credentials.

Employment and Wages

The project was charged with tracking placement, employment and wage outcomes of participants. Employment data was tracked through an agreement with the Wyoming Department of Workforce Services. Data was provided to the project in aggregate. According to this source, 55 participants who completed TAACCCT funded programs of study entered employment within the tracking region. This constitutes approximately 33% of the 163 participants who completed programs of study in the first three years of the project and *did not* indicate they were incumbent workers.

Continued Education

Articulation to other institutions for the purpose of advancing education was tracked through the National Student Clearinghouse. There were 199 participants who completed programs of study in the first three years of the project; data was not yet available for those who completed their programs of study in year four of the project. Of those 199 participants, there were 20 who entered other postsecondary institutions to continue their education. This constitutes approximately 10% of the completers who pursued continued education.

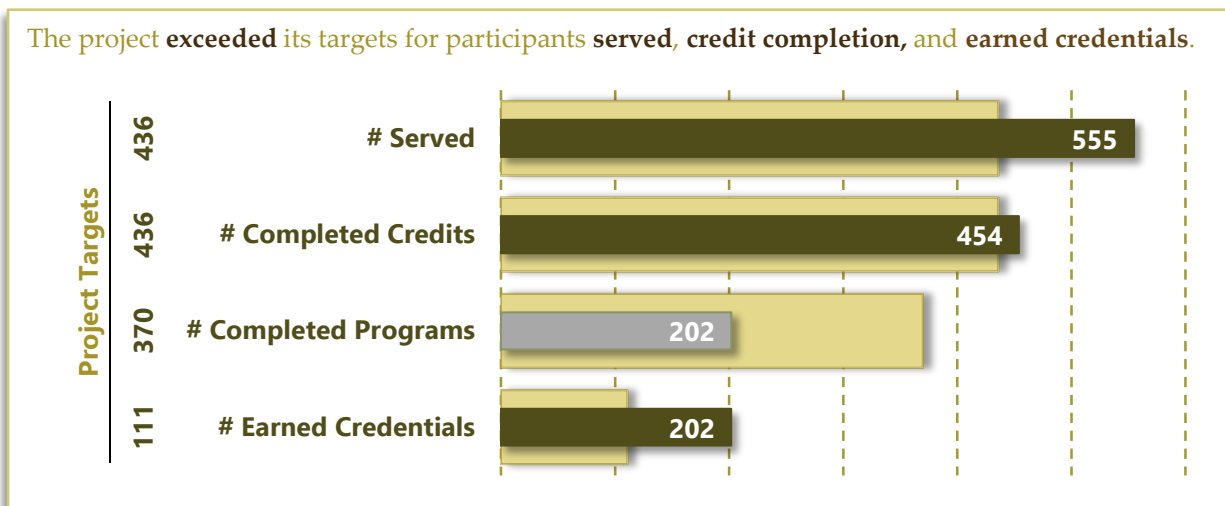


Figure 4: Pathways to Success Project Outcomes



Figure 5: NWCCD Diesel Technology Bay

PROJECT IMPLEMENTATION EVALUATION

CTE PROGRAM DEVELOPMENT AND ENHANCEMENT

How were the programs and trainings selected, used, or created?

The project modified seven Career and Technical Education (CTE) training and degree programs that were directly related to the energy industry. The programs were selected in 2013 because of the high demand for those occupations in the region in response to an aging and retiring workforce. The programs selected included:

- **Machine Tool Technology** is offered at both the Gillette and the Sheridan campuses. Students can earn a one-year certificate or an Associate of Applied Science in Machine Tool Technology at either campus.
- **Diesel Technology** is offered at both the Sheridan and Gillette campuses. The program includes options for students to earn a one-year certificate or an AAS in diesel technology at either campus.
- **Electrical Apprenticeship** is offered at both the Sheridan and Gillette campuses as an option for students employed in electrical fields. Students in the Electrical Apprenticeship program earn a certificate of completion over the period of 4 years.
- **Welding Technology** is offered at both the Gillette and Sheridan campuses. Students can work toward earning a one year certificate or an Associate of Applied Science in welding.
- **Construction Apprenticeship** is a new program offered at the Sheridan campus under the Construction Technology department. The apprenticeship program complements the working component required by the Wyoming Department of Labor for apprentices to become eligible to receive a certificate of apprenticeship as a journeyman carpenter, which is nationally recognized.
- **HVAC Apprenticeship** is offered at the Sheridan campus. Leveraging the college's strong partnerships and relationships with employers, it is taught in partnership with a local employer, Powder River Heating, who started out helping with labs and eventually took over the instruction of the courses. This apprenticeship program also complements the work requirements required by the Wyoming Department of Labor for apprentices to become eligible for the journeyman's examination. Courses are held over the period of four semesters with guided on-the-job training experiences provided by the employer.
- **General Technology** was modified and renamed to become **Industrial Technology** so that it better reflected the needs of the regional workforce. The term Industrial Technology more accurately conveyed the intent of the degree program as a pathway for certificate earners toward a BAS via AAS degree option.

How were the programs improved and what delivery methods were offered?

The programs selected were modified in the first year of the project. Modifications occurred by incrementally adding state-of-the-art equipment, web-based technology, and simulators to expand and improve the college's course offerings. As a result, course offerings were uninterrupted while the modifications were made. The project helped to enhance the Machine Tool program at the Gillette campus by upgrading it from being primarily manual tooling to include more CNC (computerized) machine tooling. The Diesel Technology program was enhanced with simulation equipment. The simulators allow instructors to set up scenarios where students can learn troubleshooting and problem-solving skills in hydraulics and other areas in a safe and controlled environment.



Figure 6: NWCCD Diesel Technology students using Amatrol Simulator

The project provided the woodworking equipment necessary for the college to start the Construction Apprenticeship program.

The Welding Technology program added a MeltView camera so that instructors can better demonstrate welding techniques for students. Students have a close-up view on an external monitor located at a safe distance outside the

welding booth of what the instructor is doing. These demonstrations can be recorded for on-demand view and review later online. In addition, the camera can be used to document student welding so that students can evaluate their own progress by playing back the video of their welds.

Amatrol simulator equipment was purchased to enhance the training and education provided in the HVAC and Electrical Apprenticeship programs.

The General Technology program was enhanced to allow students to complete coursework fully online. It was also renamed the Industrial Technology program. The Industrial Technology program now offers an additional pathway specifically for Apprenticeship students to build on their certificate to earn an AAS degree online.

As programs were enhanced with the addition of simulators and other equipment, instructors were provided with training on how to use the new technology equipment in the classroom. Through that process some of the CTE faculty expressed interest in learning more about the art and science of teaching and learning. Many of the CTE faculty at NWCCD come from industry rather than academia. They are experienced and well skilled in their craft, but less skilled at teaching the craft to others, particularly in a higher education environment. The instructional designers employed by the project provided individualized training and assistance in how to organize curriculum, how to structure lesson plans, and how to employ various teaching strategies to interested CTE faculty.

Training in how to use the college's learning management system to support teaching and learning was also provided to CTE faculty. While there are varying levels of adoption discussed later in this document, CTE faculty at NWCCD are now using the LMS to enhance their courses, to provide hybrid courses, and to provide courses fully online.

What was the program Administrative Structure?

The Pathways to Success Project Director was directly supervised by the Vice President for External Relations and Economic Development. The Project Director was responsible for supervising the instructional designers and Data Support Specialist. The Data Support Specialist was funded part time under this project. The Project Director was initially responsible for supervising the CTE Advisor, but this position was firmly placed under the supervision of the Advising Department later in the project. The CTE Advisor is now a regular position in the NWCCD Advising department and will be sustained past grant funding.

The CTE programs and faculty are directly supervised by the Dean of Technical Career Education. It was critical that the Project Director work closely with the Dean in order to garner support for some of the project's strategies. While this arrangement posed challenges to project management, it required a certain level of buy-in from the CTE faculty and other departments. This buy-in may prove to be facilitative for sustaining some of the more promising project innovations and strategies past the life of the grant.

Veteran's Services

NWCCD was recently recognized as a "Military Friendly" campus. Through private funding from the Marna M. Kuehne Foundation, NWCCD has established a Veteran's Services office at both Gillette and Sheridan College. The funding provides for daily operations as well as scholarships for military veterans. The people who work in the Veteran's Services offices have military experience and so they can relate to National Guard and active duty. This brings them credibility with their students. Veteran's Services is part of and works closely with the Advising Department to provide continuity of advising. Together, they are coordinating workshops for students on interviewing and resume writing.

What contributions did employer partners make to the Pathways to Success Project?

NWCCD has extremely strong and active partnerships with employers and industry in the region. Employer partnerships are embedded into the culture of NWCCD and into the way NWCCD does business. Some of the larger employer partners include Cloud Peak Energy, Powder River Energy Corporation, Dick Anderson Construction, Powder River Heating and Cooling, and L&H Industries. Partners serve on advisory boards and provide valuable information regarding industry needs and emerging technologies. They work with NWCCD to provide authentic learning experiences in the form of cooperative education and/or internship placements when appropriate.

Partners have assisted the colleges in getting some of the programs off the ground and have even provided instructors when needed. The colleges' employer partners have committed to *not* hiring students until they have completed a degree or certificate in order to promote program completion. These partnerships are incredibly valuable to NWCCD in terms of continual program improvement and helping the college ensure that the skills and knowledge they teach continue to meet current industry standards.

The partnerships are important to the employers, as well. Employer partners interviewed view NWCCD as an important supplier for their ongoing workforce needs and are eager to hire NWCCD graduates. Toward that end, employers help to recruit students to the NWCCD programs. Recruitment includes compelling their employees to enter NWCCD programs such as an apprenticeship as a requirement of continued employment or a leadership certificate in order for advancement. Recruitment also includes advocating publicly for the programs offered at the colleges and the colleges in general.

PRE-ASSESSMENT OF PROJECT PARTICIPANTS

Determining College Readiness

At the beginning of the project, Work Keys was used for course placement purposes. The state of Wyoming no longer recognizes Work Keys as a useful indicator for work readiness. Therefore, NWCCD no longer uses it. CTE students at NWCCD are now tested using ACCUPLACER prior to enrollment. This is the same pre-assessment process experienced by non CTE students at NWCCD. The assessment results are used to place students into the appropriate math and writing courses. Students who score under the cutoff scores on the ACCUPLACER are required to take remedial courses prior to enrolling into the college level math and English courses required for their certificate or degree.

CTE Students typically want to focus on the skills of their trade rather than spend time on general education courses. Those students who are placed into remedial courses have lower completion rates than academic track students. Just 12% of CTE students at NWCCD who take remedial courses complete their programs of study. The completion rates for students who are placed in remedial courses at NWCCD mirror national trends. Students who are not college ready in math and reading/writing skills struggle with college level material not only in math and reading, but often in core courses as well.

For students who score just under the cut score, entering remedial courses does not increase the likelihood toward persistence or completion. Some contributing factors include examination fallibility for placement, the time and financial resources it takes to complete remedial courses compared to their benefit, disconnection between what is taught in remedial courses and what is needed in program courses, and the instructional approaches typically used in remedial courses.ⁱ Therefore, the college also utilizes high school transcripts and prior learning assessments to conduct intentional student advising.

Credit for Prior Learning (CPL)

Some CTE students come to college with prior work or military experience. NWCCD has made strides in further developing prior learning assessments to award CPL to those who qualify. All of the methods for CPL attainment available at NWCCD have been carefully documented in the updated CPL handbook to reflect the most current methods for students to earn CPL at NWCCD. Methods include standardized tests, departmental exams, and portfolio assessments. Although CPL is gaining acceptance at NWCCD, there are challenges to utilization. It takes time and expertise to build reliable and valid assessment tools to measure student competencies in skills-based courses. The process for developing a CPL portfolio is overwhelming for students and the review process is cumbersome for faculty so it is not typically utilized. Another challenge is that often student work experiences do not match the program of study or it is not as rigorous as the learning that is required in the CTE course or program. Nationally, the most success with CPL has been where CPL has the support and commitment by state and regional level collaborations. However, “more data that tracks and analyzes the impact of credit for prior learning options on enrollment, persistence and completion rates will build CPL sustainability.”ⁱⁱ The same can be true at NWCCD.

Military Credit for Prior Learning

The project worked to increase its military credit for prior learning (MCPL). When a military veteran comes to NWCCD, they pull the joint services record to see if there are any potential opportunities for CPL. According to the Veteran’s Services office at Sheridan, it is often the case that the student wants to do something different than what they did in the military and so the credits do not apply well to the program chosen. However the opportunity is there for those who qualify.

STRATEGIES FOR IMPROVING CTE STUDENT ACHIEVEMENT

Contextualized Curriculum

For some student, Math 1500 is a gatekeeper to degree completion. NWCCD has attempted alternative strategies to help CTE students successfully complete Math 1500. The course material for Math 1500 has been adapted to be CTE specific. The language in the word problems has been changed to be contextualized and more consistent with the language of the CTE professions. The math instructor and CTE instructors coordinate their lessons so that when certain concepts are taught, they can be practiced in the CTE labs using the tools they would use in the profession. This might include measuring ohms in the electrical lab, for example. As an additional support, the college is working to integrate MyMathLab into the Math 1500 course.

A similar approach was used for the required English course. Students were encouraged to tailor their assignments to their chosen CTE professions. Some effort is made to try and schedule CTE students into particular English course sections as a group in order to accommodate greater use of CTE language designed to help CTE students succeed in those courses.

Math Boot Camp Pilot

CTE students who scored just below the cutoff for Applied Mathematics on the ACCUPLACER were encouraged to attend a mathematics “boot camp”. The boot camp provided targeted instruction so students could brush up on the math skills they were missing. They were given optional homework assignments. Of 11 students who entered the pilot boot camp, 6 retook the placement exam and 4 scored well enough to be placed into Math 1500. This pilot was not as well attended as hoped, but the preliminary results indicate that this may be an effective strategy for reducing the number of students who are required to take remedial math, potentially improving District persistence and completion rates overall.

Math and English Schedules Out of Sync with CTE

CTE courses are offered in blocked format. The math and English courses are offered in a more traditional format. The math and English course schedules often require students to come to campus for just an hour three times per week. Some students drive a considerable distance to attend classes, and they expressed frustration with having to make an additional trip to campus to attend these non-CTE courses. They indicated that they would appreciate if these courses can be scheduled on the same days as their CTE courses.

Friday Forum Math Tutoring

The Friday Forum is an applied math assistance forum that was held on Friday afternoons. Students who had a 70% or lower grade average in their Math 1500 course were required to attend. The Friday Forum was taught by their regular math instructor. Because it was the regular instructor who facilitated the Friday Forum, he was well aware of concepts with which the students were struggling. Depending on the needs of the students in attendance, the instructor provided a targeted lesson, coaching, or one-on-one help.

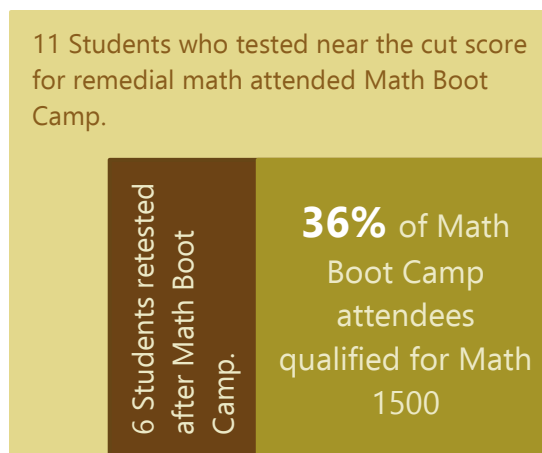


Figure 7: 4 of 11 students who attended the Math Boot Camp qualified for placement in the required college level math course upon retesting after attending the Math Bootcamp.

COACHING CTE STUDENTS FOR SUCCESS

What was the process for developing the coaching plan and manual?

The Pathways to Success project allowed NWCCD to hire a full time CTE Advisor/Coach. The project developed a coaching plan and manual designed specifically for working with CTE students. The coaching manual was developed through a combined effort of the CTE Advisor/Coach and the Project Director. The CTE Advisor/Coach developed specific coaching methods for working with CTE students at NWCCD. The Project Director documented the processes in manual form. The manual outlines processes and strategies for working with CTE students that include pre-assessment, credit for prior learning, and approaches to other types of assistance.

Advising cultures differ at the two NWCCD campuses

NWCCD has one Advising department with a Director. The Director oversees the Advising personnel at both Sheridan College and Gillette College. The philosophy of providing advising services for students from “cradle to grave” is comparable at the two campuses. Both institutions have dedicated college advisors who work closely with students and faculty to ensure that students receive high quality college and career planning. At both Gillette College and Sheridan College, CTE students begin their intake and registration processes with the Advising office. Students attend the Student Orientation, Advising, and Registration (SOAR) event when they begin at either college. The Advising office provides training for faculty advisors on how to use the college’s systems to support students. However, how advising is implemented after the initial registration process differs at the two campuses. The Advising culture at Gillette College is less centralized than at Sheridan College.

At **Gillette College**, students are assigned an advisor from the Advising office once they are

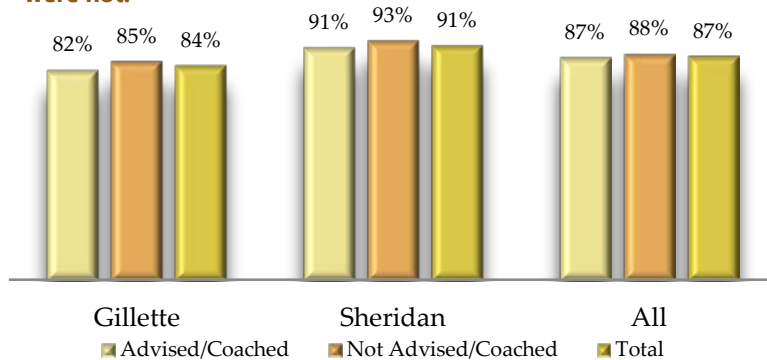
accepted to the college. This advisor helps the student get courses scheduled for the first semester. The student is then turned over to the CTE program faculty member in the student’s desired program. It is the faculty advisor who then maps out the student’s program sequence for his/her certificate or degree program. CTE faculty at Gillette assume full responsibility for advising their students from that point through program completion. CTE faculty at Gillette College indicated in interviews that they do not want anybody else to provide academic advisement to their students once they are enrolled in the program. They want to build a relationship with their students right away and manage their schedules from the start. CTE students shared in focus groups that they view their instructors as the most important resource for them regarding course sequencing and connecting with employers post-graduation. Typically, CTE students interact with the Advising office at Gillette College after the first semester only if they have not yet connected with the CTE faculty in a CTE course.

At **Sheridan College** CTE faculty and students rely more heavily on the central Advising office to support CTE students. When a student applies to the college for a CTE program, the student is not only assigned to the CTE advisor, but also to the faculty advisor for the program into which they are enrolling. The CTE advisor reaches out to the student and helps during the SOAR experience. The CTE advisor helps the CTE student plan out his/her college course schedule and certificate or degree plan. Faculty at the Sheridan campus indicated that they have a strong working relationship with the CTE advisor. Both faculty and students appreciated when the CTE Advisor helped students register each semester at Sheridan College. CTE students at Sheridan suggested that it would be helpful if a Financial Aid person also came to the CTE classroom at registration time to help with managing expenses until loans and grants are distributed.

Does a CTE Advisor Make a Difference in Persistence and Completion?

The Pathways to Success project documented whether or not a student received any advising or coaching from the CTE Advisor. It did not document a differential of how often, to what extent, or the kind of advising or coaching that was provided for each student; nor did it document advising or coaching instances from the faculty advisors at either campus. The analysis below reflects the number of students who received any advising or coaching from the CTE Advisor hired by the project and those who were not documented as receiving any advising or coaching from the CTE Advisor hired by the project. Persistence and completion rates were compared between project participants who received coaching from the CTE Advisor and those who did not.

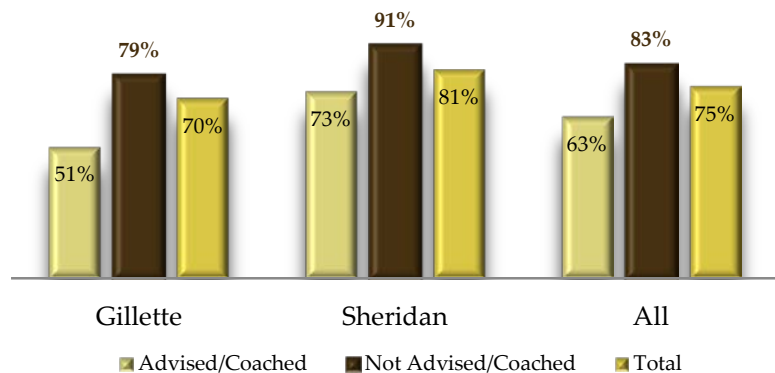
There was no significant difference in persistence between students that were advised by the CTE Advisor and those who were not.



Over the course of the project, there were 330 participants who received coaching or advising from the CTE Advisor. This is approximately 59% of the project participants. There were no statistical differences in **persistence** rates noted for participants who were coached and those who were not. Likewise, there were no statistical differences in **withdrawal** rates noted for participants who were coached and those who were not.

Conversely, statistically significant **completion** rate differences were noted with respect to participant coaching status for all programs at Gillette College, Sheridan College, and at both combined. Specifically, completion rates for the students who were not documented as receiving coaching/advising from the CTE Advisor were higher than those who were documented as advised or coached. It is important to consider that this does not take into account advising from faculty.

There were statistically significant higher rates of completion for participants who were not documented as advised by CTE Advisor than those who were not documented as coached.



These results do not necessarily mean that a CTE Advisor is not important. This project documented only whether or not a student interacted with the CTE Advisor. The quasi-experimental analysis does not take into consideration the developing nature of the advising strategy over the course of the project. In other words, the results may have been impacted by the turnover in CTE Advisor or potential impact of differing faculty advisors. It is important to also look at other impacts that are more qualitative in nature. What do students value?

A case management approach to advising holds promise

The Pathway to Success project identified several strategies believed to be important for working with CTE students that are distinct from advising strategies used with academic track students. Whether the case management is handled by the CTE Advisor or a faculty advisor, there are some specific actions designed to promote CTE student retention and completion at NWCCD. The students at Sheridan College tend to utilize the CTE Advisor for support whereas at Gillette College, they tend to be more connected with their faculty advisor. This may be, in part, because the CTE Advisor is housed at Sheridan College. However, it is likely also due to differing CTE advising cultures at each of the two colleges.

Speak the Language of the Profession

At the beginning of the project, the CTE Advisor set up an office in the Sheridan College CTE building where most of the CTE students spent the bulk of their time. In the process of spending time in the CTE building, the CTE Advisor discovered some things the college had not considered before. The CTE Advisor talked with the CTE faculty about their programs. She learned about the programs of study and developed a stronger understanding of the language of those professions. While the faculty advisors inherently understand their own professions as expected, having the CTE Advisor understand the language helped her be more “believable” for students entering the programs. There was discussion about the importance of the Admissions department personnel better understanding the CTE programs so that they can promote them more effectively to prospective CTE students.

Understanding the professions can help the Advisor build trust and credibility with CTE students and prospective students. Speaking the language of the profession can help her better advocate for CTE students regarding CPL or with challenges they encounter when appropriate.

Build a Relationship with CTE Students

While the current CTE Advisor no longer utilizes that office space, the experience illustrated how important it is for the advisor to get to know CTE students on a personal basis in order to proactively advise and advocate for them. CTE certificate and degree plans are typically more prescriptive than academic track programs. The CTE Advisor builds the students’ educational plans so that they have them mapped out. This helps to track progress toward educational goals.

The CTE Advisor keeps a Care List for students. Both students and teachers can file a care report. All care reports for CTE students go to the CTE Advisor. When she receives a Care Report for a student, she coordinates the appropriate supports for that student. Supports can include disability services, tutoring, financial aid, or other services.

Advocacy took the form of coordinating tutoring services, helping students apply for Credit for Prior Learning (CPL), and helping students work through financial or behavioral challenges. Advisors advocated for students pursuing CPL and conferred with faculty regarding approval of CPL. Student focus groups suggested that students feel more comfortable discussing any issue that may negatively impact their success in the program when they believe their advisor really cares about them. In order to help students become more comfortable with her, the Advisor makes a point to be present in the cafeteria on a regular basis to interact informally with students.

Provide Advising from Cradle to Grave

The NWCCD Advising department believes it is their role to support students from enrollment through post-graduation. NWCCD leveraged its relationships with industry to host a job fair; the first in 8 years. There were 27 employers who participated. A flier was provided that included a description of the employer, positions available, majors desired, and if an internship opportunity existed. Space was also provided for employers who wanted to hold onsite interviews.

USING TECHNOLOGY FOR TEACHING AND LEARNING

Simulators and equipment provide technology-enabled classroom learning.

The Pathway to Success project served to improve the CTE classroom environment at NWCCD with equipment and simulators. Faculty worked with instructional designers to select appropriate technology that they believed would enhance the teaching and learning for particular courses. As described earlier, the degree programs in the project were enhanced with Amatrol simulators and other equipment. The use of simulators provides a safe and controlled environment in which students can learn critical skills. Instructors in the CTE programs at NWCCD received training on how to operate the Amatrol simulators and other lab equipment in the first year of the project and have become adept at integrating the use of simulators into classroom teaching.

Students indicated that they like working with the simulators to practice their skills, especially in high risk conditions such as in diesel mechanics or with expensive equipment like the computerized

machine tooling equipment. However, they also indicated that some of the simulators are not as exciting as working with the real equipment. They appreciate the opportunity to work with the authentic equipment after they have gained confidence with simulators and instructor modeling..

In addition, 101 CTE students were surveyed and asked to rate on a four-point scale how important various technologies were to their learning and the extent that these technologies were used in the classroom. Comparing mean scores of the responses, it would appear that in general the technologies that are more important to students in terms of supporting their learning are used more often in the classroom. The exceptions are that simulators and trainers are not used as often as students would like and that maybe the Smartboards are maybe used more often than students see important. Comments by students on a survey indicate they prefer actual demonstration over lecture.

According to students surveyed, technology that is more valued by them is typically used more often in the classroom.

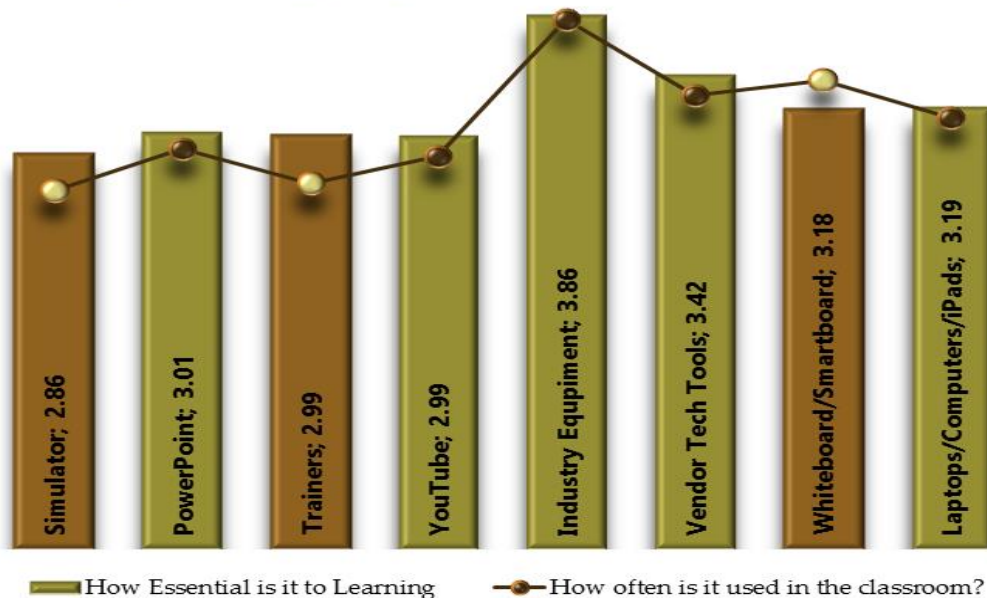


Figure 8: Student survey results about the importance of and use of technology in the classroom (n=101)

Instructors grow in their use of Blackboard in CTE courses

In addition to physical technology in the classroom, CTE faculty received training on how to integrate various types and levels of web-based technology in their classrooms. Several technologies were already available at NWCCD but underutilized, particularly by CTE faculty. The primary tool for web-enhancing CTE courses was Blackboard. Blackboard is the learning management system (LMS) that has been in place at NWCCD. It is a tool that allows instructors to share course content with students and can be used to provide other resources for students that they can access online. The project has helped to develop the full Industrial Technology AAS degree program for online delivery.

Instructional designers and faculty worked together in the first year of the project to help faculty better understand how to use the college's LMS as well as some of the other technology tools available and of interest to them. Training in Blackboard Basics, how to web-enhance courses, and how to create robust assessment activities online was provided for instructors in the fall of 2014 with additional training in the spring of 2015.

Training was also provided on other web-based technologies in the spring of 2015. These were followed up with open lab times in which faculty and staff could receive one-on-one assistance with the technology. Prior to the Pathway to Success project, two of the CTE instructors utilized Blackboard. The project activities initially produced changes in the CTE faculty use of educational web-based technology. After the initial training, there were 12 CTE faculty members using Blackboard.

Growth in the use of Blackboard and other technologies was stalled when the instructional design positions were eliminated. Faculty indicated a strong need for the instructional designers. They expressed frustration with the technology and that they didn't have the time or expertise to troubleshoot issues with it or to practice using it independently without support. As a result, the project reinstated the instructional design positions. Most of the instructional design support later in the project was focused on identifying instructional design needs of CTE faculty and helping them to better understand how to use Blackboard for various purposes. As a result, nearly all of the CTE instructors now utilize Blackboard to support teaching and learning in some way. (See Figure 8)

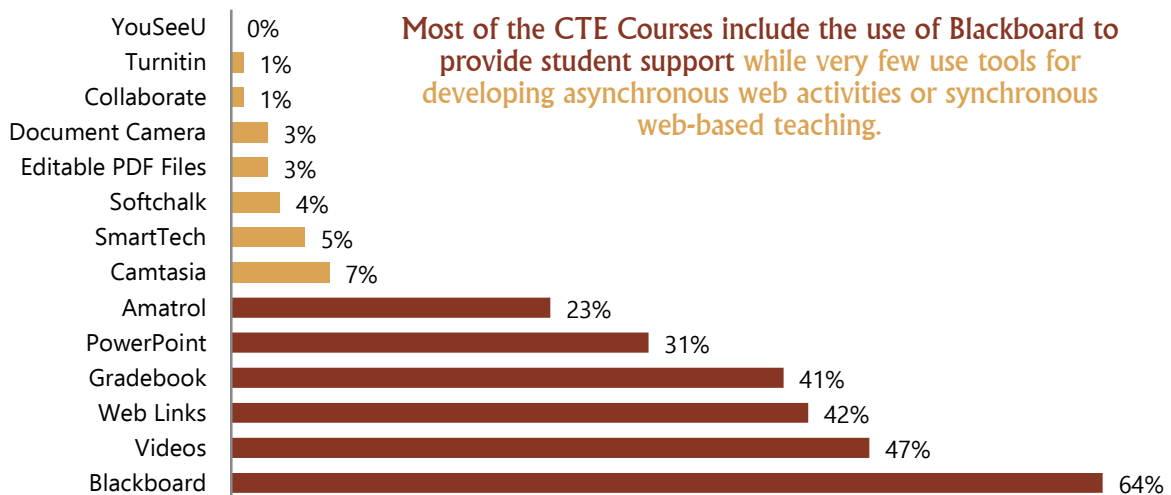


Figure 9: Technologies Used in CTE Courses at NWCCD

CTE students believe some of the tools offered by the LMS are essential to their learning

CTE students were surveyed about their perspectives of the current LMS, Blackboard. They were asked about how essential each tool within the LMS was to their learning, how essential it was to their satisfaction with the course experience, and how often their instructor used each of the Blackboard tools. There were 101 respondents to the survey.

CTE students surveyed indicated that the use of the Course Home Page, the Gradebook, and

Attendance are important to their learning and satisfaction with courses. In particular, they commented on the importance of keeping the Gradebook up to date so that they can see their progress and make sure they haven't missed any assignments. They indicated that the Getting Started aspect of the LMS is not essential or unimportant to their learning or satisfaction with courses. Survey responses indicated they perceived that faculty utilize the various aspects of the LMS daily or weekly in accordance with how important they view those aspects.

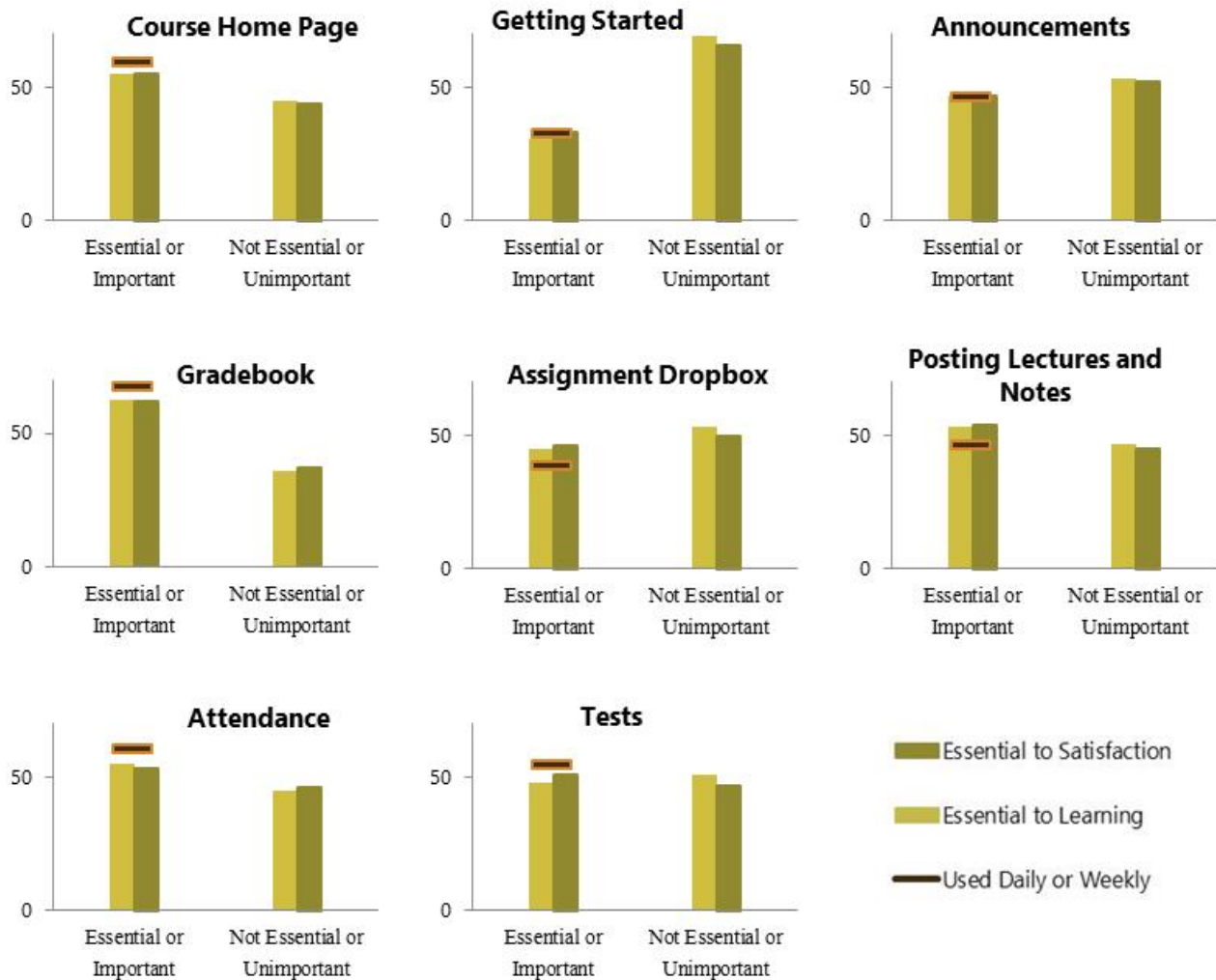


Figure 10: Student survey results about the importance and use of tools available in the LMS (n=101)

Instructional design support is critical to expanding CTE faculty use of LMS

CTE faculty attitudes toward the use of Blackboard in teaching and learning and for offering online courses have changed from the beginning of the project. In the trades and CTE fields, it is critical that students develop muscle memory in developing their skills. Much of that happens in the labs, on the job, or in field based experiences such as coops and internships. However, several CTE faculty members indicated that offering some components online allows slower learners more time to learn bookwork without pressures of time constrictions.

There is evidence that CTE faculty would benefit from continued instructional design support. Twenty of the CTE faculty members (11 from Gillette College and 9 from Sheridan College) were surveyed about their instructional design support needs. Most of the faculty surveyed (19) indicated that they want help in setting up a course shell in Blackboard, including the gradebook, lessons, and announcements. Eighteen (18) indicated they wanted help in setting up a course for online delivery.

Instructional design support will be even more critical if the district moves to another learning management platform. There is discussion at the state level of adopting Canvas for use across secondary and post-secondary statewide. If this happens, faculty at NWCCD will need assistance to convert to the new system. Even if the state arranges for services to move existing course components to a new system, there will need to be local support for faculty to learn how to use the new system.

The district will need to take steps toward ensuring course shells are set up consistently and that the components are utilized consistently, regardless of LMS used. In other words, how students access assignments, activities, and tests should be the same across courses. And instructors should be consistent about how and

when they submit grades or post assignments in the LMS. A course template can be developed. Currently, students perceive Blackboard as “user unfriendly”, likely because there is little consistency among course shells. A course template helps to ensure courses meet ADA requirements while distinguishing as NWCCD. It also provides the consistency and predictability students expect.

Students need instructor presence

Students were asked about their views of online and hybrid education at NWCCD. Most of the students who were interviewed throughout the project indicated that they prefer hands on activities and working directly with their instructors, however would be interested in taking general courses online or hybrid. According to focus group responses, apart from not always having ready access to the Internet, they indicated that they feel a little cheated that they don’t see the instructor as much. Instructor involvement in the online portion of a hybrid course is not evident to them. Students perceive that instructors are not “present” in online or hybrid CTE courses. Students want and need to have access to their instructors and they view these course formats as restricting their access to their instructors. One of the tenants for instructional design, particularly for online learning, is “transactional distance”.

Transactional distance is relative to the cognitive, social, and behavioral interactions between the instructor and student, and can be impacted by environment.ⁱⁱⁱ When the student and instructor are separated by geography (not in the same place) or by time (not working synchronously) then the transactional distance between them is increased. It is important to intentionally design interactivity into web-based and hybrid courses in a way that *reduces* transactional distance. This requires instructors to understand how to effectively facilitate learning in these courses. High quality instructional design and faculty coaching can help increase student satisfaction with online and hybrid courses.

Online about half of the CTE students surveyed are comfortable with computers and about a 25% or less are interested in taking a CTE course online or in hybrid format.

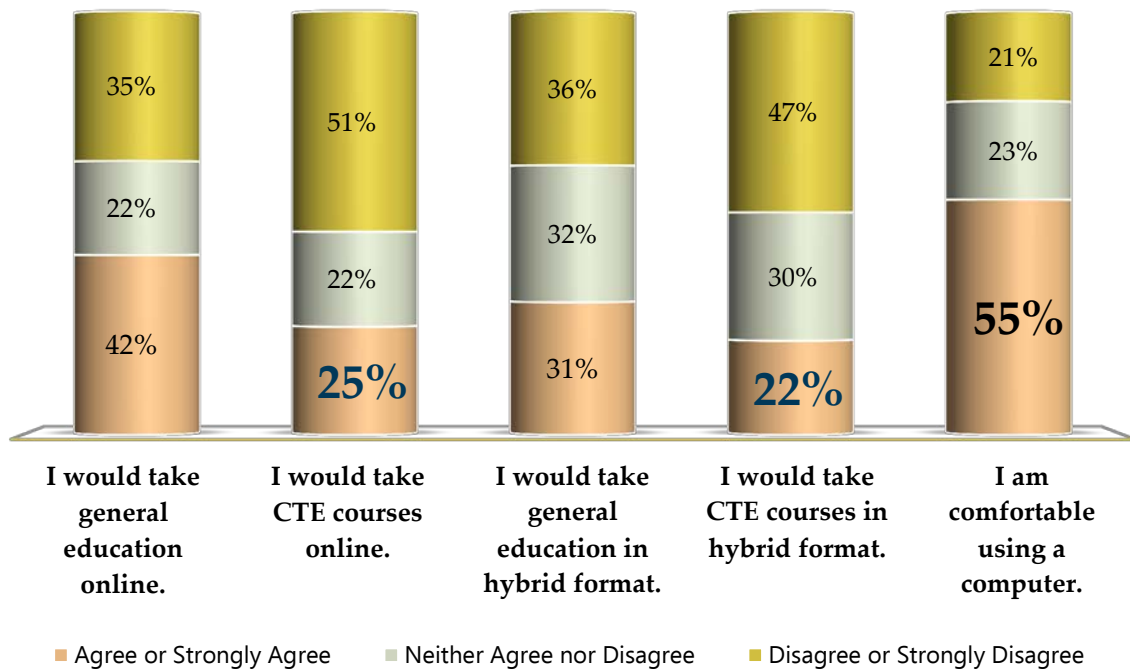


Figure 11: Student survey results about interest in web-based education (n=99)

Instructional designer roles and position should be well defined

With the elimination of the Online Education Department due to district budget cuts and the potential shift to another LMS, it will be even more important that the role of the instructional designer (ID) is well defined. Some IDs are more focused on providing technical support with how to use an LMS or other web-based development and/or delivery tools. They help faculty learn the mechanics of how to use the technology. Other IDs focus on providing pedagogical support on how to best use the technology to support the teaching and learning process. They help faculty better understand adult learning principles and apply them in the classroom while leveraging the environment and course delivery format. Some blend the two approaches, although it can be difficult to find one person who has expertise with both skill sets. However, it is important that these

skill sets be available for faculty, particularly CTE faculty, in order to promote high quality course design and/or course supports. Again, if the district moves to a different LMS, there will need to be an identified LMS contact responsible for policies and procedures, development of templates, faculty training and coaching, and other LMS questions that arise. The ID may prove to be a valuable resource to fill these duties.

In addition to expertise needed, NWCCD should consider where in the organizational chart the instructional designer is best positioned. If the expertise is primarily in pedagogy, then the position might be placed under academic services. If the expertise is primarily in technical support for learning, the position might be better placed within the department that provides technology support. Either way, it is advisable to include the ID person(s) on the Distance Education Committee.

PATHWAYS TO SUCCESS PARTICIPANT OUTCOMES

STUDENT ACHIEVEMENT, PERSISTENCE AND COMPLETION WERE EXCEPTIONAL

Metrics for Success

The Pathways to Success project tracked student achievement, student persistence, and program completion. The metric used for student achievement was the grade point average and credentials earned. The metric for completion included all full time and part time students. The typical metric of fall to fall retention was deemed inappropriate for this project because of the nature of some of the programs. Certificate programs can last just one year, which would potentially skew fall to fall data. Instead, the project tracked student persistence, or lack of program withdrawal, as a more appropriate metric for progression.

Propensity Score Matching

Propensity score matching was conducted in order to best balance control and treatment groups based on gender, age, and race. The match was based on a one-to-one match, i.e., each student attendee in the control group was matched with only one student attendee in the treatment group. First, statistical tests of significance were conducted to determine whether program outcome differences existed between treatment control groups **before propensity score matching**. Generally, outcomes for participants of all programs combined were examined. Then, statistical tests of significance were conducted to determine whether program outcome differences existed between the treatment group and control group **after propensity score matching**. This method helped to determine the strength of causal relationships between project activities/strategies and project outcomes and not due to other factors.

Initially, employment status at program start and wages at program start were also considered, however, the information was not available and/or unreliable in most cases.

Project Participants had GPA of 3.25

Mean grade point average (GPA) for project participants was 3.25. This translates to the 88th percentile or a “B” average. The mean GPA for specifically the treatment group of 24 NWCCD TAACCCT-funded students identified through propensity score matching who graduated was a little higher at 3.46, which rounds to an “A” average. This was compared to the mean GPA of 3.28 for the 41 graduates in the control group. While these both indicate high levels of course achievement, there is no statistically significant differences were noted in the mean scores of the two groups.

Every project participant who completed a program of study earned a credential

The TAACCCT funded programs of study included in the Pathways to Success project have embedded into them industry recognized credentials. Each offers a credential by virtue of its certificate or degree. The apprenticeship programs constitute hours and experience toward journeyman status in those occupations. Some programs offer industry certifications, such as in welding. Similar to the completion data discussed above, there were statistically significant increases in the number of credentials earned compared to the control group.

Project Participant Persistence Rate was 87.2%

Persistence in this evaluation was defined as continued attendance toward completions. It was calculated by the following formula:

$$\frac{(\# \text{ Completed} + \# \text{ Active})}{\# \text{ Started a Program}}$$

The persistence rate for participants in the Pathways to Success project was 87.2%, a very strong persistence rate. The withdrawal rate for program participants (not counting those who transferred to another school or program) was just 11.7%. Was this different from previous rates? Persistence was recalculated after propensity score matching was used to control for varying student characteristics. The results were even more compelling. After propensity score matching, the persistence rate 90.9% for participants who were assigned to the treatment group that most closely matched the control group from 2012, prior to the project. The differences in persistence rates between the control group and the treatment groups are significantly different with a Z of 3.902.



Figure 12: NWCCD CTE students working with an HVAC Amatrol simulator

Project Participant Completion Rate was 74.5%

The Completion rate for the project was computed by dividing the number of students who graduated from their programs by the total number of participants who have left the college not due to transfer. Completion was computed using the following formula:

$$\frac{\# \text{ Completed}}{(\# \text{ Started} - \# \text{ Active} - \# \text{ Transferred})}$$

The completion rate for participants in the Pathways to Success project was 74.5%. This is extremely strong compared to typical community college rates of approximately 22% according to the Department of Education or the rate of 39% published by the National Student Clearinghouse. It more than doubles the published Sheridan College completion rate of 30% for first time full time students from the 2012 cohort. The calculation for project completion is more inclusive than the IPEDS calculation and is not limited to “first time full time” students. Even though the comparison is not identical, the IPEDS completion rate of 30% for the first time full time 2012 cohort within 150% time serves as a relevant benchmark for this project. The completion rate for the control group was 61.1%, still higher than any of the NWCCD published completion rates. That said, the difference in completion rates between the control (61.1%) and participant groups (74.5%) was statistically significant.

Like with persistence, the overall project completion rate was recalculated after propensity score matching. Again, the results were even more compelling with an 80% completion rate for the treatment group compared to 61.1% for the control group. The difference between the control and treatment groups was statistically significant with higher completion rates noted for the treatment group funded by the TAACCCT grant (Z=2.267).

EARNED CREDITS, RETAINED EMPLOYMENT, AND POST-COMPLETION PLACEMENT

Attainment of One or More Credit Hours

The project tracked the percentage of participants who completed one or more credit hours. Overall, 81.8% of the participants earned one or more credit hours while enrolled. When looking at the 66 students identified through propensity score matching as the treatment group, the percentage of participants who earned one or more credit hours while enrolled was identical (81.8%). In comparison, 93.9% of the students in the control group earned one or more credit hours while enrolled. This constituted a statistically significantly higher rate for earning one or more credit hours. It begs the questions, then, if this is an appropriate measure for student achievement or predictor for student persistence and success. While the treatment group had a statistically significantly lower rate for one or more credit hours while enrolled, it also had statistically higher persistence and completion rates than the control group.

Post-Completion Enrollment in Continued Higher Education

NWCCD worked with the National Student Clearinghouse to track participants into continued higher education. The project was only able to collect data on participants who completed their programs of study in the first three years. According to the National Student Clearinghouse report from September 2016, there were 20 participants who matriculated into continued higher education.

Post-Completion Placement in Employment for Unincumbent Workers

NWCCD engaged in an agreement with the Wyoming Department of Workforce Services (WDWS) to collect employment and wage data for unincumbent program completers. According to a

report received from WDWS in January 2017, there were 55 unincumbent project participants who were employed after program of study completion. The data represented unincumbent participant completers from the first three years of the project and there was no employment data available from the control group for comparison. No wage data was provided by WDWS for unincumbent workers.

Incumbent Worker Post-Completion Retained Employment and Wages

Similarly, NWCCD attempted to collect employment and wage data for participants who were incumbent workers from WDWS. There were 100 participants who self-reported that they were employed at the time of enrollment into the program with 36 (36%) of those completing a project program. A report provided by WDWS in January of 2017 provided aggregate information for unique participants retained in employment after program of study completion. It indicated that 48 incumbent participants retained employment after program completion in the first three years of the project. Since the number reported by the state is higher than the project's records of graduating incumbent workers, it is likely that the data collected for incumbent workers is incomplete or missing.

There are other factors that could have impacted the number of incumbent workers who retained employment. By 2016, there had been over 500 mine workers laid off in the region. Many of these displaced workers are in the NWCCD's service area. Some of the project participants were likely part of the workforce that was laid off. However, because individual data is not available from WDWS, it is impossible for the project to know. And there was no data available from the control group to make any comparison. No wage data was provided by WDWS.

CLOSING SUMMARY

PROJECT HIGHLIGHTS

Strategies were developed to help students succeed in math

- A Math Boot Camp was piloted to help students better prepare for Math 1500 with promising results.
- Math 1500 was redesigned to include contextualized activities and content related to CTE programs.
- Formalized tutoring was provided by the instructor to students who struggled in Math 1500.

Increase in technology use in CTE classrooms has helped to support teaching and learning

Blackboard helps students access their grades and monitor their own progress. It also helps the instructor to provide handouts and lecture notes that students can access after the class period or if they have to be absent. While they don't think CTE courses should be offered online, many would appreciate general courses offered online to better accommodate their schedules. Students value the use of various technologies in the classroom such as simulators, vendor technology tools, trainers, and industry equipment to support their learning in the CTE classrooms.

Advising and coaching is highly valued by CTE students.

CTE students and faculty at Sheridan College like to have the CTE Advisor come to them and help them to register for classes and coordinate education plans. They also like the CTE Advisor to be involved in helping students when they

experience challenges that threaten to get in the way of their academic success. CTE students and faculty at Gillette College appreciate the CTE Advisor helping students when they enter the college and help them transition to the CTE faculty for continued advisement. The CTE faculty at Gillette College typically like to assume the responsibility for coordinating education plans and helping students with various challenges if they arise once the student is in their program.



Taken from: www.sheridan.edu/academics/support-services

Student achievement, persistence, and completion were exceptional.

Project participants had exceptional levels of achievement. The mean GPA for students was 3.5. All of the participants who completed programs of study earned credentials or graduated from the program of study. The persistence rate for program participants was 87% with a completion rate of 75%, almost double that of the published graduation rate for NWCCD.

ACTIONABLE INSIGHTS

Continued Instructional Design support for faculty is necessary to continued growth in technology use to support teaching and learning.

CTE faculty at NWCCD, like at many other campuses, are highly skilled and well-experienced in their trades and industries. They typically have little experience in academia. The faculty at NWCCD have appreciated the assistance in developing lesson plans, learning about different teaching strategies to meet the needs of adult learners, and guidance in integrated technology to support teaching and learning. Place-based technology such as simulators, trainers, and other equipment help students learn skills of the industry in lab situations. Web-based technology helps students to keep up with assignments, monitor their grades, submit and track assignments, and access additional learning resources. One constant is that technology is ever changing.

The District should continue to gather evidence related to the value of ID services at the institution. An external evaluation was used to determine impact of ID thus far and assess continued need. It is important that faculty understand how to use the technology to more effectively support teaching and learning. As the District continues to work toward improving its academic and support services for students, it will be important to establish standards for look, feel, and function of the LMS. Currently, students get confused about where things are in each of the courses. Different instructors file course elements in different places. For example, assignments might be kept in the calendar for one course and in a course resources section in another course. Students need predictability so that the technology *enhances* their learning experience rather than getting in the way of it. This is especially

important if the District moves to a different LMS due to state led efforts.

Assuming the District following the above recommendation, it will be important to determine the role and placement of Instructional Designer. Will the instructional designer's role lean toward technical support in using the course tools within the LMS? Or will the instructional designer's role be more of an instructional coach who helps instructors teach better in multiple environments? Once the role of the Instructional Designer has been defined, the institution will need to determine where that position fits organizationally.

Continued development of the advising processes for CTE students through ongoing evaluation

Projects like TAACCCT grants allow college to implement and evaluate new strategies and innovations. When funding is over, these innovations often lose momentum and support. It is important to measure their impact on an ongoing basis. The Institutional Research, Advising and CTE departments should share the responsibility for data analysis for decision-making. Monitoring and evaluation are important aspects to improving, sustaining, and scaling strategies and innovations that show promise.

Ongoing study of ways to support students in math achievement

Math is a gatekeeper for many students. Only about 12% of CTE students who enroll in developmental math complete their degrees at NWCCD. Approaches like the math boot camp may have some merit in improving student success with math. The Friday Math Forum and contextualizing to support student achievement in Math 1500 also have merit.

ABOUT THE EVALUATION

PURPOSE OF THE EVALUATION

Northern Wyoming Community College District received a round three single institution Trade Adjustment Assistance Community College and Career Training (TAACCCT) project funded by the Employment and Training Administration of the Department of Labor (SGA/DRA PY 12-10). The purpose of this evaluation was to provide an external and independent review of the District's progress towards meeting grant goals and outcome measures. This evaluation covers project activities and progress from the full period of the project, from 2013 to 2017. Information was gathered through interviews with key personnel, student focus groups, a review of relevant documents, and data collected from the college's student information system. Although there have been significant economic challenges in the service area, the district has made continued progress toward improving processes and services to support teaching and learning for career and technical education students.

MEET THE EVALUATION TEAM



Northern Wyoming Community College District contracted with **Dr. Leah Woodke** of Woodke360 Consulting to conduct the external evaluation of the TAACCCT Round 3 grant project, Pathway to Success. Dr. Woodke, President of Woodke360, has almost 30 years of experience in education ranging from early childhood to higher education; 12 of those years were in higher education. She has extensive background working with federal grant programs, particularly those funded by US Department of Education and US Department of Labor. She is an experienced project consultant and evaluator who has worked with organizations in the private, public and tribal sectors. Dr. Woodke holds a Master of Education degree in Educational Leadership and a PhD in Education with a focus on instructional design for online learning.

Woodke360 has partnered with Larry Graf of Westwood Research & Statistical Services and Daniel Driessen. **Larry Graf** holds an MBA and provides statistical data services and research assistance.

Daniel Driessen holds a MEd and has been working in higher education for 18 years and has over 10 years of experience managing distance education, overseeing career and technical education programs, and managing the largest dual enrollment program in North Dakota.

Endnotes:

ⁱ Bailey, T. and Smith Jaggars, S. (June 2, 2016). When College Students Start Behind. The Century Foundation (retrieved from <https://tcf.org/content/report/college-students-start-behind/>)

ⁱⁱ Lakin, M. (Sept. 1, 2015) Credit for Prior Learning: Transfer Models across the Nation. The Council of State Governments. p.447 (retrieved from <http://knowledgecenter.csg.org/kc/content/credit-prior-learning-transfer-models-across-nation>)

ⁱⁱⁱ Moore, M. "Theory of transactional distance." Keegan, D., ed. "Theoretical Principles of Distance Education (1997), Routledge, pp. 22-38. (retrieved on June 30, 2017 from <http://www.c3l.uni-oldenburg.de/cde/found/moore93.pdf>)