TRANSFORMING EDUCATION FOR ADVANCED MANUFACTURING SOUTH DAKOTA (TEAM SD)

Lake Area Technical Institute

Trade Adjustment Assistance Community College and Career Training Grant

Third Party Evaluation Final Report

Reporting Period: October 1, 2014 – September 30, 2018

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Transforming Education for Advanced Manufacturing in South Dakota

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September 2018

This work force solution was funded by a grant awarded by the U. S. Department of Labor's Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U. S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including but not limited to accuracy of the information or its completeness, timeliness, usefulness, adequacy continued availability, or ownership.

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Executive Summary

TAACCCT Program/Intervention Description and Activities

- Lake Area Technical Institute (LATI), located in Watertown, SD, was awarded a four-year federal TAACCCT grant in October of 2014 to address the growing workforce need in South Dakota's advanced manufacturing industry.
- LATI's efforts involved five existing programs of study: Electronics/Robotics (AAS); Energy Operations (AAS), High Performance Engine Machining (AAS); Precision Machining (AAS); and Welding Technology (Diploma/AAS).
- Transforming Education for Advanced Manufacturing in South Dakota (TEAM SD) focused on four components: pipeline development and expansion; curriculum enhancement and expansion; an accelerated education model; and improved employer relationships and industry engagement.
- Transforming Education for Advanced Manufacturing in South Dakota (TEAM SD) focused on three goals: increase attainment of degrees, certifications, diplomas, and other recognized credentials; introduce or replicate innovative and effective methods for designing and delivering instruction; and demonstrate improved employment outcomes.

Evaluation Design

- The goal of the evaluation of the TEAM SD program was to provide program leaders, partners, and funders with data based observations for informing the implementation process and for making judgments about program effectiveness.
- A logic model was created with program leaders and describes how the project intervention strategies address the growing need for highly skilled positions in the advanced manufacturing industry.
- Four evaluation questions used to focus the implementation analysis were required in the TAACCCT Round 4 Solicitation of Grant Application (SGA). Four additional questions were used to focus the outcome and impact analysis. Two summative evaluation questions were identified to address program success.
- The outcomes analysis describes the extent to which outcome measure targets were achieved and compares enrollment and graduation/retention data between grant and non-grant participants during the three years prior to the onset of grant activities.

Implementation Findings

- TEAM SD leveraged learnings and work from previous rounds of TAACCCT. Some of TEAM SD staff positions are expansions of positions created in previous rounds of TAACCCT.
- Leadership conversations initiated during previous TAACCCT rounds have led to policy development and improved student services.
- One online hybrid program was implemented to encourage incumbent workers to participant in advanced manufacturing programs. A "Learn Where You Earn" model was piloted in which a student/employee can complete program theory online and accomplish lab work using non-production machines at his/her work site.
- The implementation of the TAACCCT Round 4 work resulted in improved infrastructure and an increase in personnel positions many of which will be sustained.
- Nine activities were implemented to accomplish the grant work. All activities have been institutionalized.

Participant Impacts and Outcomes

- All outcome measures met or exceeded targets with the exception of outcome measures ten. This measure focuses on the number of participants employed at enrollment who receive a wage increase post-enrollment. Year 4 data was not available when this report was submitted and will be collected and reported in the Annual Performance Report.
- Average self-reported placement rates for the five TEAM SD program graduates (2014-2017) 6 months after graduation indicate 90.1% of graduates are employed in their field of study or continuing their education.
- Employment averages in grant-funded programs increased .4% compared to historical comparison groups.
- Wage averages in grant-funded programs increased 12.5% compared to historical comparison groups.
- Average graduation/retention rates increased by 5.5% compared to historical comparison groups.
- Average enrollment in grant-funded programs increased 47.8% compared to historical comparison groups though the state funded Build Dakota Scholarship Program likely contributed to this large average increase.

Conclusion

- Project goals, strategies, and activities were largely implemented as planned and with quality. Project strategies and activities have been institutionalized.
- Outcome measures 1 – 9 met or exceeded target goals. Final numbers for employment outcome measures 8 – 10 were not available when the final report was submitted.
- The average enrollment, graduation/retention, employment, and wages increased for the grant-funded programs. (HPEM, established in 2012-2013 was not included in the historical analysis.)
- A variety of grand-funded program enhancements were made possible with grant funding and partner contributions including industry-standard equipment and technology in each of the identified Advanced Manufacturing Programs of Study that resulted in work force ready graduates. An expanded technology infrastructure continues to support LATI's capacity for technical education at a distance.
- Advanced manufacturing program instructors have a long-standing, exceptional relationship with their industry partners. Advisory boards provide regular input to the Advanced Manufacturing Programs of Study resulting in programs closely aligned to industry needs.
- Innovative educational models such as "Learn Where You Earn" are being implemented in two business sites and options are being explored to replicate this model in other area businesses. This model allows student/employees to pursue an advanced degree accomplishing the theory online and the hands-on lab work at their place of employment facilitated by an onsite mentor.
- Student surveys and focus group discussions identified quality instructors, labs equipped with industry standard equipment, and access to technology within the industry as key to the success of the Advanced Manufacturing Programs of Study.

Introduction

"In 2009, the American Recovery and Reinvestment Act amended the Trade Act of 1974 to authorize the Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant Program. On March 30, 2010, President Barack Obama signed the Health Care and Education Reconciliation Act, which included $2 billion over four years to fund the TAACCCT program.

TAACCCT provides community colleges and other eligible institutions of higher education with funds to expand and improve their ability to deliver education and career training programs that can be completed in two years or less, are suited for workers who are eligible for training under the TAA for Workers program, and prepare program participants for employment in high-wage, high-skill occupations." (https://www.doleta.gov/taaccct/)

The overarching goals of the program are to:

1. increase attainment of degrees, certifications, certificates, diplomas, and other industry-recognized credentials that match the skills needed by employers to better prepare workers eligible for training under the Trade Adjustment Assistance (TAA) for Workers Program of chapter 2 of title II of the Trade Act of 1974, and other adults for high-wage, high-skill employment or re-employment in growth industry sectors;
2. introduce or replicate innovative and effective methods for designing and delivering instruction that address specific industry needs and lead to improved learning, completion, and other outcomes for TAA-eligible workers and other adults; and
3. demonstrate improved employment outcomes.

During the grant-funded period, TEAM SD developed and delivered a comprehensive career pathways and training program to address the growing workforce need in South Dakota's advanced manufacturing industry. TEAM SD focused on four components:

1. pipeline development and expansion;
2. curriculum enhancement and expansion with advanced technology-enabled learning;
3. an accelerated education model; and,
4. improved employer relationships and industry engagement.

The goals of the TEAM SD project align to the National TAACCCT goals and a number of activities and deliverables were in place to address and document each goal.

1. Increase attainment of degrees, certifications, diplomas, and other recognized credentials;
2. Introduce or replicate innovative and effective methods for designing and delivering instruction; and
3. demonstrate improved employment outcomes.

Context

Lake Area Technical Institute (LATI) is a nationally ranked two-year technical college located in the rural agricultural area of Watertown, SD, population 22,000. Founded in 1965, the primary service area is 18,000 square miles which includes northeast South Dakota, western Minnesota, and southeastern North Dakota and encompasses three major South Dakota cities: Aberdeen, Brookings, and Watertown. It offers twenty-nine programs of study, eleven of which can also be obtained online, and a variety of certifications, diplomas, and Associate of Applied Science (ASS) degrees. LATI is accredited by the Higher Learning Commission (HLC) and is governed by the State Board of Technical Education.

Awards

After being recognized as a Finalist with Distinction in every one of the 4 prize cycles since it was first announced, in 2017, LATI was selected from 1,123 community colleges nationwide as the **top community college in the nation** by the **Aspen Institute Community College Excellence Program**. (http://highered.aspeninstittue.org)

According to the 2017 Aspen Prize Publication, **"LATI leaders have developed an uncommonly coherent system for technical education, one in which industry is more deeply embedded in the campus culture and practices than perhaps anywhere in the country."** The Aspen Institute's College Excellence Program aims to advance higher education policies, practices, and leadership in ways that help institutions of higher education make the choices that matter most to improving student outcomes.

In addition to being selected as the top community college in the nation by the Aspen Institute, LATI was also named one of the **Best Online Colleges in South Dakota for 2018** by TheBestSchools.org. Ranking guidelines include selecting the

online colleges based on the quality of programs, types of courses and degrees offered, faculty strengths, as well as school awards, rankings, and reputation.

The Center for Digital Education (CDE) announced the winners of the **2017-18 Digital Community Colleges Survey** in which LATI earned a top 10 spot in the Small Colleges Category. The survey awards honor community colleges utilizing technology to engage students, collaborate with k-12 and other educational institutions, and improve learning. All accredited U. S. community colleges were eligible to participate in the survey within three classifications based on size of enrollment. The CDE is a national research and advisory institute specializing in K-12 and higher education technology trends, policy, and funding. (www.centerdigitaled.com)

LATI earned the 2018-2019 **Military Friendly School** designation at the silver level. This is the 9th consecutive year LATI has received the Military Friendly School Award and the 3rd year in a row it has received added-level status. Institutes earning the Military Friendly School designation were evaluated using both public data sources and survey responses from students and the school. More than 1,400 schools participated in 2018-2019 with 941 earning the designation.

In addition to winning school-level awards, LATI students are also awarded highest honors. One especially worth mentioning is Aric Leadabrand, a Robotics and Electronics student awarded the **2018 Outstanding Student Award at the American Technical Education Association National Conference** in Pleasant Prairie, Wisconsin. The American Technical Education Association National Awards are annual recognition of the outstanding performance for technical students, technical faculty, and technical programs. The nomination process includes letters of endorsement by college administrators, colleagues, students, businesses or organizations with a relationship to the program through hiring students, statements by the nominees of their work and role in technical education and services, awards, accreditations, curriculum, and participation with ATEA.

Student Profile

In the fall of 2016, LATI enrollment was approximately 2, 451 students. Demographic data shows that a majority of students are Caucasian (95.6%), male (50.9%), between the ages of 20-29 (41.7%), receive financial aid assistance (91%), and are employed (75%).

The majority of LATI TAACCCT participants were also Caucasian (83.8%), male (93.9%), employed (100%), and 22.7 years old. It is important to note that though TEAM SD participants are predominately Caucasian, these numbers are closely aligned to the regional figures.

Demographic information found at www.census.gov indicates that the Watertown, SD population is predominately Caucasian. (94.6%)

All Grant Participant Profile					
Category	**2015**	**2016**	**2017**	**Total**	**Percentages**
Male	275	110	125	**510**	**93.9%**
Female	16	6	11	**33**	**6.0%**
Hispanic/Latino	9	2	3	**14**	**2.6%**
American Indian or Alaskan Native	8	2	3	**13**	**2.4%**
Asian	2	5	6	**13**	**2.4%**
Black or African American	3	1	2	**6**	**1.1%**
Native Hawaiian or Other Pacific Islander	0	0	0	**0**	**0**
White	251	94	110	**455**	***83.8%**
More Than One Race	0	0	0	**0**	**0**
Full-Time Status	259	106	123	**488**	**89.9%**
Part-Time Status	32	10	13	**55**	**10.1%**
Incumbent Workers	149	36	60	**245**	**45.1%**
Eligible Veterans	12	4	8	**24**	**4.4%**
Participant Age (mean)	24	22	22	**22.7 yrs.**	**22.7 years**
Persons with a Disability	1	3	4	**8**	**1.5%**
Pell-grant eligible	127	45	54	**226**	**41.6%**
TAA-eligible	2	1	0	**3**	**.5%**

- Participants are not required to report race information

TEAM SD Participant Selection

Grant participants were selected on the following critiera:

- Enrolled in one of the grant funded programs of study
- First or second year student

All students in the advanced manufacturing courses selected to be included in TEAM SD are considered grant participants. Two tests are used as indicators of success prior to students being admitted to programs at LATI: the ACT, a national college admissions examination that consists of subject area tests in English, Mathematics, Reading, and Science and COMPASS which tests student knowledge in Mathematics, Reading, and Writing.

Additionally, LATI uses the National Career Readiness Certificate (NCRC) to guage student success through a pre- and post-assessment process once students are admitted to a program of study. The NCRC is “an industry-recognized, portable, evidence-based credential that certifies essential skills necessary for workplace success.”

Grant Governance

The TEAM SD project implementation is under the supervision of LATI Vice President, Diane Stiles. The Grant Manager, Terri Cordrey; Dean of Academics, Kim Bellum; and Director of Student Services, LuAnn Strait, share the responsibility for overseeing grant staff. Grant decisions are made by a leadership team comprised of the LATI President, Michael Cartney, LATI Vice-President, Diane Stiles, and Grant Manager, Terri Cordrey.

Programs

In response to the need for skilled workers in advanced manufacturing fields in South Dakota, TEAM SD leadership focused the work on the following five programs of study.

TEAM SD Program Delivery Methods

Program	Description
Electronics/Robotics	Electronic systems now form the powerful "central nervous system" of manufacturing and business technologies. There is a demand for robotic technicians in the high tech world of manufacturing as countless industries adopt the use of cutting-edge automated systems to improve safety and efficiency. Crucial areas include computer systems, automated manufacturing systems, medical machines, digital signs and displays etc. This traditional and/or hybrid, 18 month program produces skilled technicians to design, manufacture, and support this technology. (AAS)
Energy Operations	This traditional, 20-month program prepares students for a career in the operations of a power (coal, hydro, wind, nuclear, etc.) or process (ethanol, oil, bio-diesel, etc.) plant as well as technicians who have the skill and experience to maintain and repair production equipment. (AAS)
High Performance Engine Machining	This traditional, 18 month program provides students with technical knowledge and hands-on skill necessary for a qualified high performance engine machinist in the automotive, diesel, and precision machining industries. (AAS)
Precision Machining	This traditional and/or hybrid, 18-month program prepares students in the working properties of metals using manual and cutting-edge computer-controlled methods to make precision-machined products. (AAS)
Welding	Students enrolled in welding technology may choose to receive a welding diploma in nine months or continue in the program to earn an Associate of Applied Science degree in 18 months. The program features hands-on, interactive training in brazing, arc welding, heliarc welding, metal inert gas welding, and oxyacertylene welding. (Diploma/AAS)

Program descriptions found at www.lakeareatech.edu

Evaluation Design

The goal of the evaluation of the TEAM SD program is to provide program leaders, partners, and funders with data-based observations for informing the implementation process and for making judgments about program effectiveness. The evaluation design reflects a formative assessment of the implementation of specific interventions and a summative assessment of the program's outcome measures.

The implementation design encompassed collecting relevant data from three primary sources:

1. program leaders and partners,
2. program participants,
3. and program deliverables and other documents

Confirmation of the implementation of each of the interventions associated with the three program goals was based on examination of program documentation. Patterns and themes were derived from interview and survey data to identify strengths, weaknesses, and overall fidelity to the program model. Quarterly meetings with TAA staff provided data-based observations for the consideration of program leaders as they made decisions about the continuous improvement of the program.

Data to address the research questions was collected through online surveys, onsite interviews, and focus groups with program leaders, partners, instructors, and students. Coding and categorization techniques were used to uncover salient themes in the data.

Theory of Change

The TEAM SD program's theory of change includes an emphasis on re-imaging advanced manufacturing occupations through marketing efforts in order to increase enrollment in advanced manufacturing programs. Through technology-enabled and competency-based learning, technical assistance from business and industry, and proven student support systems, non-traditional students will complete advanced manufacturing programs and secure improved employment status in a more expedient and streamlined manner. By "upskilling" workers' proficiency with the latest industrial equipment and technology, graduates will help South Dakota increase and strengthen its highly skilled workforce.

The logic model for the TEAM SD program displayed below addresses the growing need for highly skilled positions in the advanced manufacturing industry.

Logic Model

Inputs	Activities	Outputs	Short Term Outcomes	Intermediate Outcomes	Long Term Outcomes
LATI advanced manufacturing programs and advisory boards, regional manufacturers, TAACCCT Round 4 funds, industry-grade technologies and equipment.	Advanced manufacturing marketing campaign, additional marketing assistant, career pathways coordinator, and continuous improvement coordinator positions, expansion of virtualization and simulation components of AM courses, expanded use of Student Success Toolkit and TED (Technical Education at a Distance Model), improved technology infrastructure at LATI, publication of Employment Results Scorecard, Third Party Evaluation.	Marketing campaign package, Grow Your Own Business Model, Career Pathways Model, Continuous Improvement Publication, course design and materials, Student Success Toolkit and TED Model, IT servers and storage, Employment Results Scorecard, Third Party Evaluation Reports.	Increased enrollment in AM programs, innovative designs for delivering AM programs, increased institutional capacity at LATI.	Increased numbers of degrees, certificates, diplomas, and other credentials recognized by the AM industry. Documented and reliable models of hybrid delivery of AM programs.	Increased numbers of employees working in AM industry with increased wages over previous employment.

The implementation analysis section of this report focuses on nine TEAM SD activities identified in the project work plan. Implementation is assessed using the *Level of Implementation Matrix* listed below. The implementation levels are determined through interviews with project leaders as well as reviews of quarterly reports and other program documentation.

Level of Implementation Matrix	
Early Planning	TEAM SD has made some progress in planning the implementation of the activity. Written plans are in the draft stage.
Full Planning	TEAM SD has a final written plan of how the activity will be structured (including logistical details).
Partial Implementation	Some activities are in the full planning stage, while others are in the early implementation stage.
Early Implementation	The activity has begun implementation on a pilot basis.
Moderate Implementation	The activity is occurring regularly.
Full Implementation	All activities have been implemented and are occurring regularly with full participation.
Institutionalized	The activity has become adopted by LATI and will continue after funding ends.

The outcome-only analysis focused on the TAACCCT program outcomes measures listed below. Student data was provided by the LATI Director of Student Services as requested by the evaluation team. Descriptive statics were used to compare previous advanced manufacturing programs enrollment and graduation/retention rates.

Participant Outcome Measures

1. Unique Participants Served/Enrollees
2. Total Number of Participants Who Have Completed a Grant-Funded Program of Study
    a. Total Number of Grant-Funded Program of Study Completers Who Are Incumbent Workers
3. Total Number Still Retained in Their Program of Study (or Other Grant-Funded Program)
4. Total Number Retained in Other Education Program(s)
5. Total Number of Credit Hours Completed (aggregate across all enrollees)
6. Total Number of Earned Credentials (aggregate across all enrollees)
    a. Total Number of Students Earning Certificates – Less Than One Year (aggregate across all enrollees)
    b. Total Number of Students Earning Certificates – More Than One Year (aggregate across all enrollees)
    c. Total Number of Students Earning Degrees (aggregate across all enrollees)

7. Total Number Pursuing Further Education After Program of Study Completion
8. Total Number Employed After Program of Study Completion
9. Total Number Retained in Employment After Program of Study Completion
10. Total Number of Those Employed at Enrollment Who Receive a Wage Increase Post-Enrollment

Evaluation Questions

The following **four formative evaluation research questions** required in the SGA represent the core of the implementation analysis for the TEAM SD program. The Evaluation Plan may be found in its entirety at Appendix A.

1. How was the particular curriculum for the advanced manufacturing programs selected, used, and/or created?
2. How were programs and program designs improved or expanded using grant funds? What was the program administrative structure? What support services and other services were offered?
3. Was an in-depth assessment of participants' abilities, skills, and interests conducted to select participants into the grant program? What assessment tools were used? Who conducted the assessment? How were the assessment results used? Were assessment results useful in determining the appropriate program and course sequence for participation? Was career guidance provided, and if so, through what methods?
4. What contributions did each of the partners, (employers, workforce system, other training providers and educators, philanthropic organizations, and other as applicable) make in terms of:
    a. program design
    b. curriculum development
    c. recruitment
    d. training
    e. placement
    f. program management
    g. leveraging of resources
    h. commitment to program sustainability?

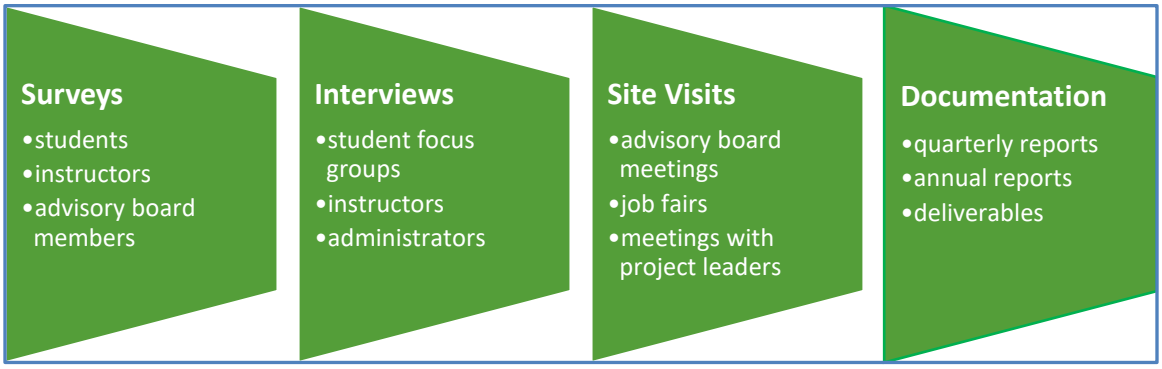
    What factors contributed to partners' involvement or lack of involvement in the program? Which contributions from partners were most critical to the success of the grant program? Which contributions from partners had less of an impact?

In addition to the implementation research questions, the evaluation also addressed the following **summative outcomes/impact analysis research questions**:

1. To what extent did each outcome measure reach its targeted goal?
2. How did the aggregate performance of the grant participants compare to previous advance manufacturing students in terms of enrollment, program completion, and time-to-completion?
3. Which of the outcome measures displayed the most growth over the duration of the grant period? Which displayed the least growth?
4. To what extent did each of the program's interventions produce the desire result?
5. In what ways did the implementation of the grant enhance institutional capacity?

Data Collection

The evaluation team used the following data collection methods during the evaluation process:



Interviews: Interviews were conducted with project leaders and instructors in March of 2016 and 2018. Interview questions were designed by third party evaluators with the input of the project manager and tailored for the specific participant or group of participants (i.e. instructors, students). Seven key instructors were selected as interviewees as well as other staff being either fully or partially funded using grant resources or identified by the project manager as crucial to the successful implementation of the grant goals. Sample interview questions may be found in **Appendix B.** Interview notes were reviewed by the evaluation team to identify themes and patterns.

F**ocus Groups:** Three student focus groups were facilitated by the evaluation team during the grant period. A group of eighteen student representatives from the five advanced manufacturing grant-funded programs met in the spring of 2016. During the spring of 2018, the evaluation team met with two student focus groups: the Electronics/Robotics Traditional Program students and the Electronics/Robotics Online Hybrid Program students. All focus group questions were developed by the evaluation team with the input of the grant manager. Sample focus group questions may be found in **Appendix C.** Focus team notes were reviewed by the evaluation team and themes and patterns were identified and reported to LATI leadership.

Site Visits: The evaluation team gathered data through direct observation during site visits. Attending advisory board meetings, taking tours of classrooms, and attending capstone project presentations like "Robot Games" have provided evaluators first hand information about the evolution of grant activities. Site visits were conducted in the following months:

- 2015: April, September, and November
- 2016: March, October, and December
- 2017: April, August, November, and December
- 2018: March, April, and May

Surveys: During the grant period, evaluators administered three surveys. From 2016 – 2018 the evaluators attended seventeen advisory board meetings and administered surveys to members in attendance. There were fifty-four responses to the Advisory Board Survey. Student surveys were administered to all students participating in a grant-funded advanced manufacturing program in the spring of 2017 and again in 2018. Survey results were used to support data cited in the final evaluation report. Additionally, the results of Employer Surveys administered by LATI to industries that hire LATI graduates were used as supporting evidence in the final evaluation report. The student survey results can be found in their entirety at **Appendix D and E** and the Advisory Board Survey results can be found at **Appendix F.**

Documentation: Evaluators collected and reviewed a variety of written documents generated by LATI, the South Dakota Department of Education, the South Dakota Department of Labor and Regulation, as well as marketing and curricular materials created by the TEAM SD project staff. Evaluators also reviewed the quarterly and annual performance reports completed and submitted by the TEAM SD Project Manager. These reports were used as a basis for the statistical analysis of outcome measures.

Limitations

A delayed start to the evaluation activities provided a challenge to the evaluation. The TEAM SD program began in October, 2014, and evaluation activities were not approved for implementation until December, 2015. Baseline information and data collected during January – March of 2016 asked interviewees to recall their perceptions of the program's beginning phase in the fall of 2014. Though the South Dakota Department of Labor and Regulation is cooperative and helpful, the sixth month processing time with regard to the collection of (employment) wage data prevents reporting the 2017-2018 information in the final evaluation report.

Implementation Findings

TEAM SD Intervention Strategies and Activities

Three goals focused the nine intervention strategies/activities and nine deliverables of the TEAM SD work.

TEAM SD Goals, Activities, and Deliverables

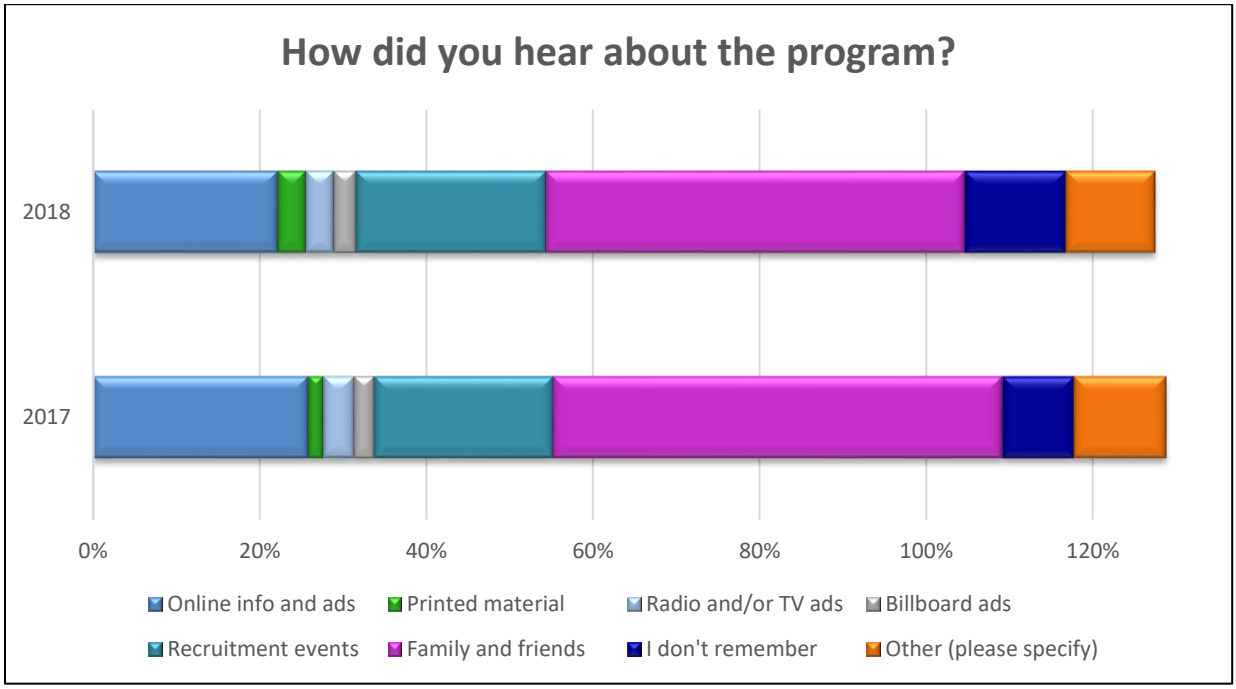
Goal 1: Increase attainment of degrees, certifications, certificates, diplomas, and other industry recognized credentials	
Activity	**Deliverable**
Create a marketing campaign utilizing a variety of formats to address employer workforce needs along with enhancing the AM workforce image.	Marketing Campaign Package
Hire Marketing Assistant to work with the AM industry and assist with the identification of employers' workforce needs, implementation of sector strategies, and the determination of a critical, complex task.	"Grow Your Own" Business Model
Hire Career Pathways Coordinator to accelerate the time to degree completion and employment through implementing the components of career pathways developed through the TAACCCT grant funded programs.	Career Pathways Model
Goal 2: Introduce or Replicate Innovative and Effective Methods for Designing and Delivering Instruction	
Activity	**Deliverable**
Hire Continuous Improvement Coordinator to develop new strategies, or replicate or adapt existing evidence-based strategies and use data for continuous improvement of programs.	Continuous Improvement Publication
Hire content experts to expand the use of virtualization and simulation in AM courses	**Course Curriculum and Materials:** • Electronics/Robotics • Energy Plant Operations • High Performance Engine Machining • Precision Machining • Welding
Leverage Round 1 Student Success Toolkit and Round 2 Technical Education at a Distance (TED) Model to improve learning completion rates.	Student Success Toolkit Ted Model
Improve technology infrastructure support for educational programs provided by the grant	
Goal 3: Demonstrate Improved Employment Outcomes	
Activity	Deliverables
Complete and publish Employment Results Scorecard	Employment Results Scorecard
Third Party Evaluation	Third Party Evaluation Report

TEAM SD proposed three goals to advance the successful implementation of the TAACCCT Round 4 work: There is significant interplay among the strategies/activities used to address the three goals.

Goal 1: Increase attainment of degrees, certifications, certificates, diplomas, and industry-recognized credentials

Early in the TAACCCT Round 4 work cycle, LATI hired an **Assistant Marketing Coordinator** to work with businesses and industries in the advanced manufacturing field to increase enrollment and interest in high demand advanced manufacturing fields. In order to expand the impact, LATI coordinated with the Build Dakota Scholarship Program (a Scholarship program initiated in 2016 by the state of South Dakota to provide students opportunities to train for high-wage, high-skill employment or re-employment at no cost to the students) to highlight high demand advanced manufacturing workforce needs. Print and digital resources were created and distributed on a variety of media sources and a **Social Media Marketing Plan** and a **Recruitment Plan** were developed.

In the chart below, the first four items indicate that an average of 32.5% of responders heard about their program of study through some form of advertisement and an average of 52% heard about the program from family and friends. Student focus group discussions also indicate that family and friends are frequently responsible for students attending LATI. The data does not reveal if the "friends and family" were influenced by the media campaign.



Additionally, the Assistant Marketing Coordinator (Business Partner Specialist) was instrumental in discussions with businesses that promote the "Learn Where You Earn" (formerly "Grow Your Own") Business Model, Registered Apprenticeships, and other innovative ways to increase the advanced manufacturing workforce. Student registration in the fall of 2017 indicated enrollment has increased in all five advanced manufacturing programs though this would be difficult to attribute solely to the marketing campaign. It is likely that having Build Dakota Scholarships available to students enrolling in four of the five grant-funded programs also contributed to increased enrollment.

With the addition of more equipment and additional students, several instructors interviewed indicated space as quickly becoming an issue. Space is being addressed in several ways. One program moved the lab to a more spacious building and two other programs accommodate increased student enrollment by splitting lab instruction into two shifts. Online programs also help alleviate the space issue.

In addition to re-imaging and marketing high demand advanced manufacturing fields, the **"Learn Where You Earn"** Business Model was implemented during the 2016-2017 school year. This model is another way for business and industry to partner with LATI using their online hybrid degree program to up-skill current or future employees.

The "Learn Where You Earn" model allows an employee to attend school while he/she continues to work. The traditional LATI online hybrid degree is a blend of distance and on-campus learning where the student studies theory online and then comes to campus on their own time to get the hands on experience using LATI labs and machinery. Using the "Learn Where You Earn" model, the program theory is still accomplished online but the hands-on lab experience is largely provided at the job site using non-production machines so the student/employee can complete labs from his/her place of work. The industry partner provides a teacher/mentor (supervisor) who acts as a liaison between LATI instructors and the student/employee and can answer questions, pass along assignments, and help with skills check off as needed.

In the fall of 2016, this program was piloted with Graco, a business located in Sioux Falls, SD, 90 miles south of Watertown, SD. Interviews with the Online Precision Machining instructors, Graco management, the mentor/supervisor, and the student/employee indicate that this model, though not without some glitches, may be one answer to help fill the workforce demands as well as being an answer to the space issues LATI is experiencing as a result of increasing enrollment. The student/employee graduated from the program in May of 2018 and is currently poised to apply for the next job opening at Graco that will advance his salary.

The success of the pilot program encouraged other businesses to come on board. In January of 2018, Falcon Plastics made the decision to attempt this unique learning model. The Falcon Plastics

student/employee finished his first semester with a 4.0 grade point average and a determination to complete the program with honors.

Interest in the "Learn Where You Earn" business model continues to grow. At this writing, both Graco and Falcon Plastics were interested in participating in the program again and Graco has four employees interested in registering for the fall semester. The Business Partner Specialist continues to promote this program in regional and individual meetings with existing and new business partners.

TEAM SD increased student support of online students by utilizing grant funds to hire an **Online Student Success Coach** (OSSC). A learning from the TAACCCT Round 1 work was that online students need different types of support than those of traditional students. The OSSC position compliments a plethora of student services in the LATI Student Success Toolkit, including counseling, academic advisors, disability services, and a diversity staff. LATI's vision is to provide support for all students from admissions to placement. According to LATI president, Mike Carney, in his acceptance speech for winning the 2017 ASPEN Prize for Community College Excellence, "we redefined success as placement – not graduation".

TEAM SD also hired a **Career Pathway Coordinator** who worked to complete and publish career pathway models for each of the grant funded advanced manufacturing programs on SkillsCommons.org. Career Paths provide a visual representation of career options available for advanced manufacturing students and an example may be found at: https://www.lakeareatech.edu/wp-content/uploads/2016/07/CareerLadderPMv3.pdf

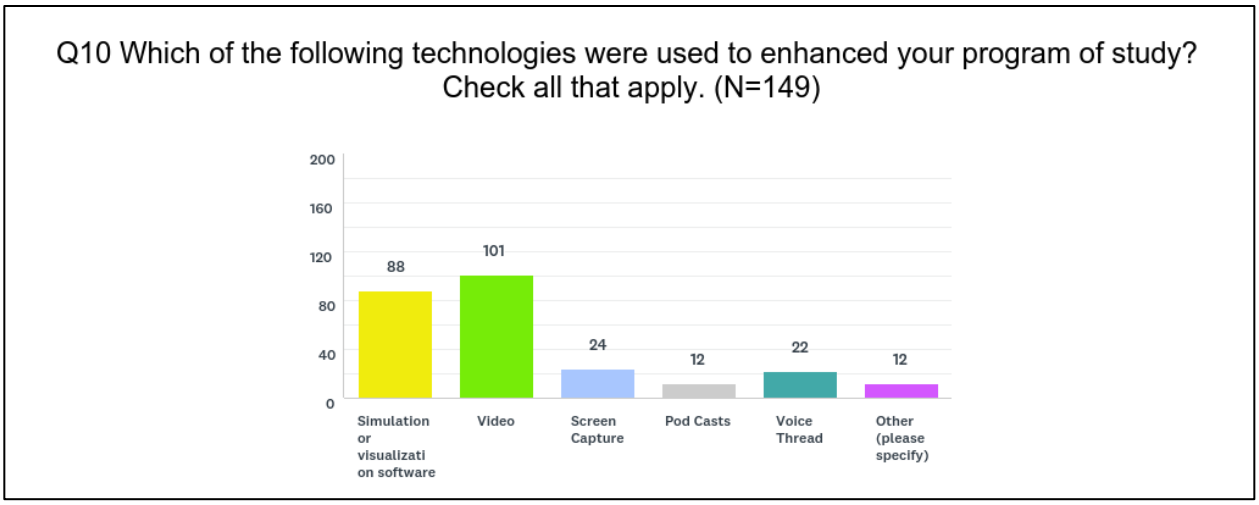
Summary: The marketing package has resulted in the development and implementation of Social Media and Recruitment Plans as well as the creation and distribution of a variety of print and digital marketing resources. The marketing assistant position evolved into the Business Partner Specialist position that expanded to include two positions. Both positions will be maintained after the grant period. The "Learn Where You Earn" Business Model is ongoing and expanding to include more industry partners. TEAM SD also increased the support of online students by utilizing grant funds to hire on Online Student Success Coach. This position will be maintained after the grant period. Career pathways have been developed and published. **Goal 1 strategies/activities have been institutionalized.**

Goal 2: Introduce or replicate innovative and effective methods for designing and delivering instruction

In order to accomplish the second goal, the TEAM SD proposed to hire a Continuous Improvement Coordinator and content experts, leverage TAACCCT Round 2 work on the Student Success Toolkit and the Technology Education at a Distance Model, and improve the technology infrastructure support for educational programs provided by the grant.

TEAM SD utilized grant funds to employ two content experts, an **Instructional Design Coordinator** and a **Technology Integrationist**, to assist instructors to integrate technology and simulations into engaging lessons. These content experts worked individually with grant program instructors to assist them in finding and implementing visualization and simulations relevant to their student learning goals. Additionally, they offered monthly "Tech Bytes" sessions that covered a variety of relevant technology topics and were available to the entire instructional staff. They also worked closely with the online grant program instructors in developing effective online instructional methods. Interviews with instructors identified a variety of ways in which these content experts were instrumental in enhancing their classroom instruction including researching and helping to implement appropriate simulation technology, assisting instructors to "flip" classroom instruction, and the creation of videos, as well as helping streamline instructor work with the Learning Management System.

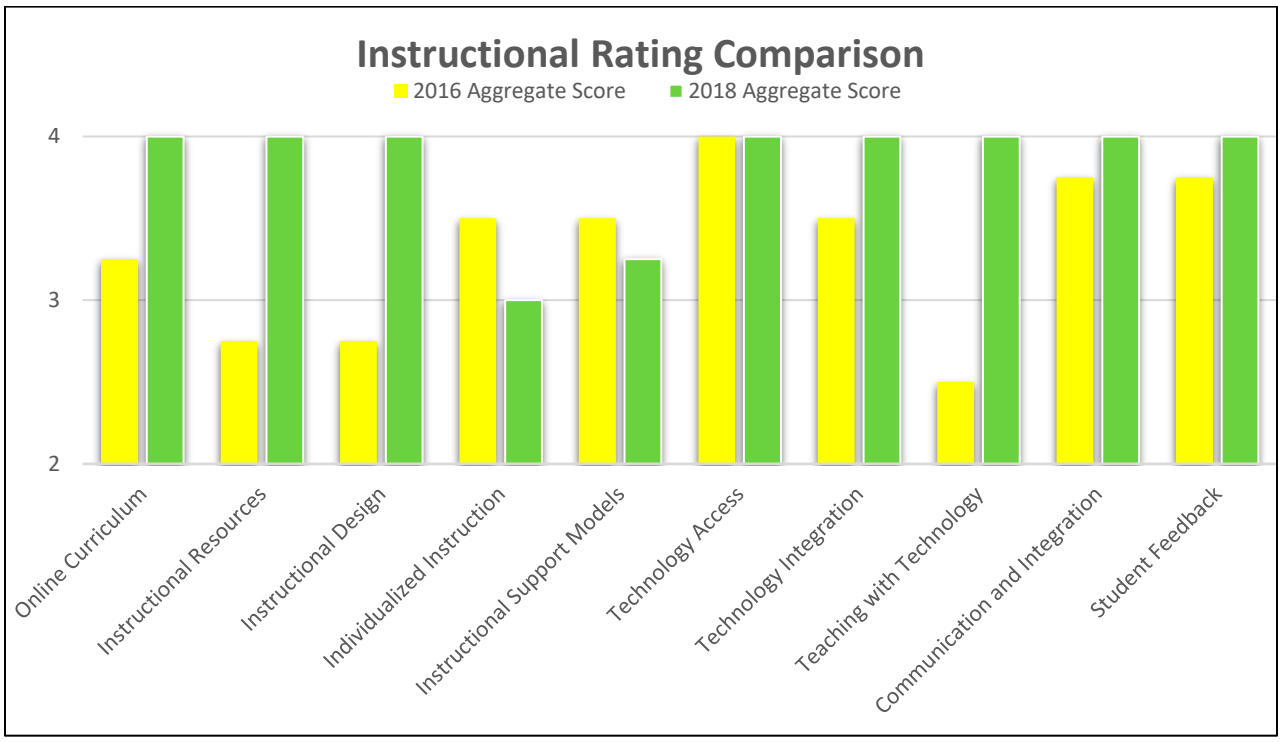
In the 2018 Student Survey, students were asked to identify technologies that enhanced their program and to choose all that applied. Eighty-eight of 149 identified simulations and visualization software and 101 chose videos.



In addition to assisting instructors' implementation of technology, the Instructional Designer and Technology Integrationist worked with grant-funded instructors to implement best classroom practices. During 2016 and again in 2018, the Instructional Designer and Technology Integrationist observed instructors teaching and rated them on a rubric developed by the evaluation team using iNACOL (National Standards of Quality for Online Programs). Instructors' scores were compared and the results are represented below. In general the data indicates that having the instructors work with content experts improved classroom practice. Instructor scores increased in seven out of ten categories and remained at a 4.0 in technology access. A copy of the rubric can be found at Appendix G.

Instructor Ratings

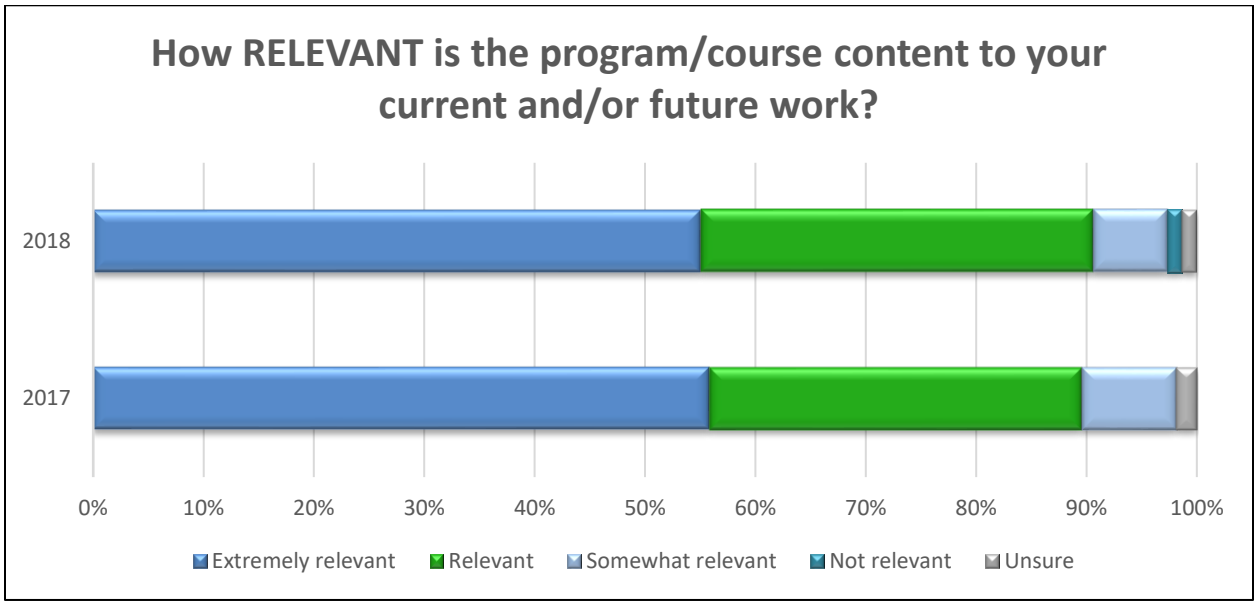
Category Observed	2016 Aggregate Score	2018 Aggregate Score	Change
Online Curriculum	3.25	4.0	+.75
Instructional Resources	2.75	4.0	+1.25
Instructional Design	2.75	4.0	+1.25
Individualized Instruction	3.5	3.0	-.50
Instructional Support Models	3.5	3.25	-.25
Technology Access	4.0	4.0	0
Technology Integration	3.5	4.0	+.50
Teaching with Technology	2.5	4.0	+1.50
Communication and Integration	3.75	4.0	+.25
Student Feedback	3.75	4.0	+.25



Though LATI is constantly exploring innovative instructional models and methods, the mainstay of their student success is their diligence to providing engaging and relevant curriculum. In addition to providing instructor support by hiring content specialists, they maintain strong relationships with their business partners that result in ongoing discussions and input regarding curriculum changes that ensure program curriculum is responsive to industry needs. Each program meets twice a year with an advisory board comprised of industry leaders specific to the program of study. Much of the discussion at the fall advisory board meeting is focused on revising the curriculum to align with current industry needs. Curriculum is revised during the

year and the advisory board approves the revisions at the spring meeting so the revised curriculum can be implemented the next fall. One instructor summed it up saying, "The advisory board brings a real-life aspect to the curriculum. They provide the standard and define what is happening in the industry."

Student survey data from both surveys suggests that course work aligns to their industry. Over 89% of respondents said that the curriculum in their program of study was "extremely relevant" or "relevant" to their current or future work.



Another innovation that is apparent at LATI is the extent of performance-based assessments and unique opportunities made available to LATI students. All students in the advanced manufacturing programs have to demonstrate they are skills proficient and workforce ready before graduation. However, the LATI students are often provided with opportunities that require them to stretch beyond the minimum requirements. The Electronics/Robotics students are required to participate in Robot Games as their "capstone" project, a multifaceted assignment that requires teams of two students to apply all the knowledge gained during their academic program to build robots according to a specific set of criteria. Advisory board members volunteer their time to act as judges for this event.

Robot Games

These same students are encouraged to apply for the NASA National Community College Aerospace Scholars Project, a five-week program that culminates with a four-day on-site event at a NASA flight research center. While on-site, student interns work in teams to develop and test a prototype rover for a fictional company interested in Mars exploration. When asked what was learned at NASA that helped with the development of the robots for Robot Games one student replied, **"It is more what did I learn at LATI that helped me with the work at NASA."** Three Electronic/Robotics students participated as NASA interns in 2016 and four participated in 2017. It is interesting to note that ten LATI Electronic/Robotic students applied for the NASA internship this year and nine of the ten completed the online summer session. All nine have been selected as NASA interns this year and three are female.

This along with exceptional efforts by the entire LATI team to continually upgrade equipment to ensure LATI graduates are workforce ready when they leave their program of study result in quality programs that produce quality graduates and accounts for a placement rate of 99%. Student focus group conversations identified having equipment that "goes along with the industry" as a definite advantage in their educational experience. One student summed it up this way, "We very rarely have outdated equipment. We are learning on equipment we will be

using when we are working in industry." Several focus group students stated that the state-of-the-art labs were the deciding factor in pursuing a degree at LATI.

In addition to offering curriculum that is both engaging and responsive to workforce needs, LATI support and instructional staff are focused on **student success and retention** and provide several points of contact for identified struggling students. One of the recent additions to the student success efforts was hiring an Online Student Success Coach (OSSC). Though a retention coordinator has been in place for a number of years, LATI administration recognized during TAACCCT Round 1 implementation that in order to be successful online students need different kinds of support than the traditional student. Consequently, an Online Student Success Coach was hired using TAACCCT Round 4 funding. The main duty of the OSSC is to work with online students from admission through graduation to address issues they may encounter. Though this is a new position, the OSSC has established important strategies to improve online students' success. She invited online students to participate in orientation days so that early in the online student's program they identified a "go to" person when they encountered difficulties. She also created a website housing online student resources, added critical information to the online student's acceptance letter, and kept staff informed about how she might be of assistance to them. As a result, the online instructional staff contacts her for assistance when online students are lagging behind in their coursework. Though the OSSC has only been employed since December 2016, the two-year enrollment and graduation data

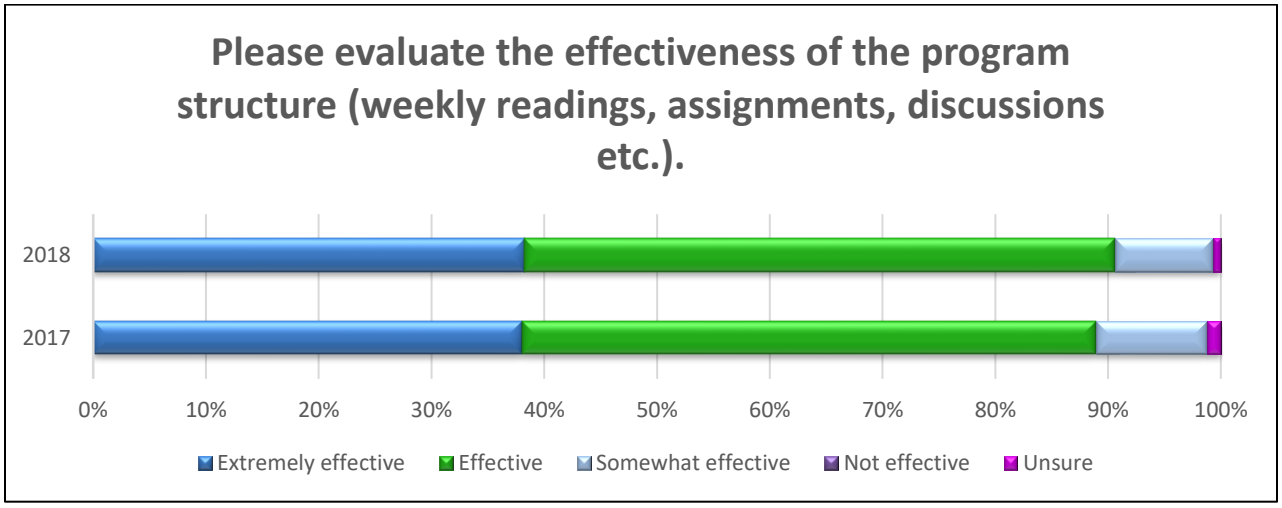
indicate positive trends. The average increase in graduation and retention data for the Precision Machining online program was .6% and the Electronics/Robotics online Program saw an average increase of 3.7% in the last two years.

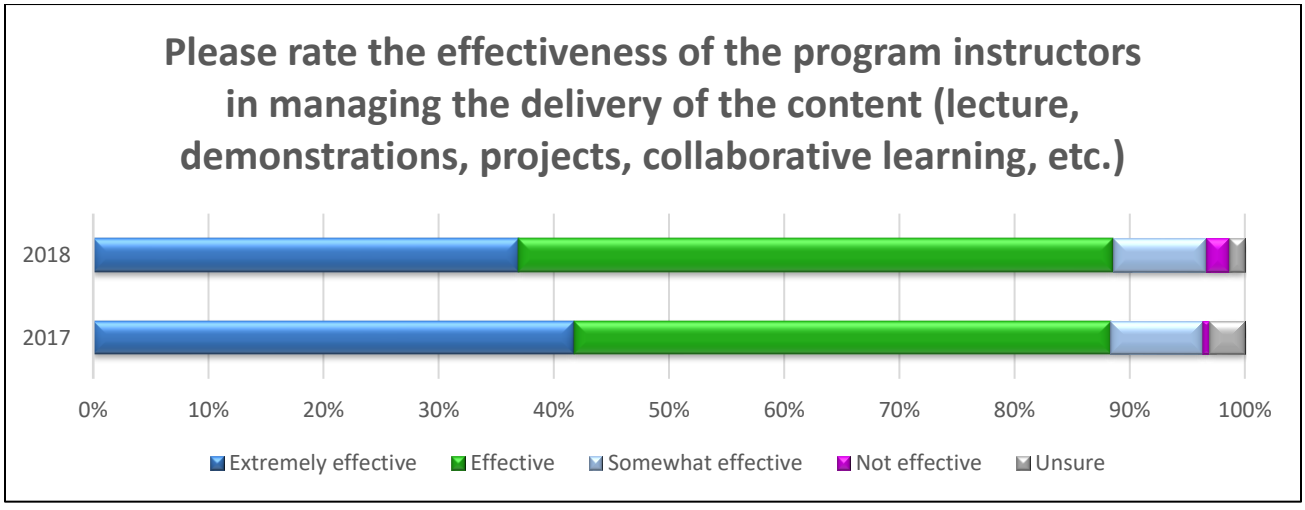
Percent of Increase in Online Program Participants Graduated or Retained

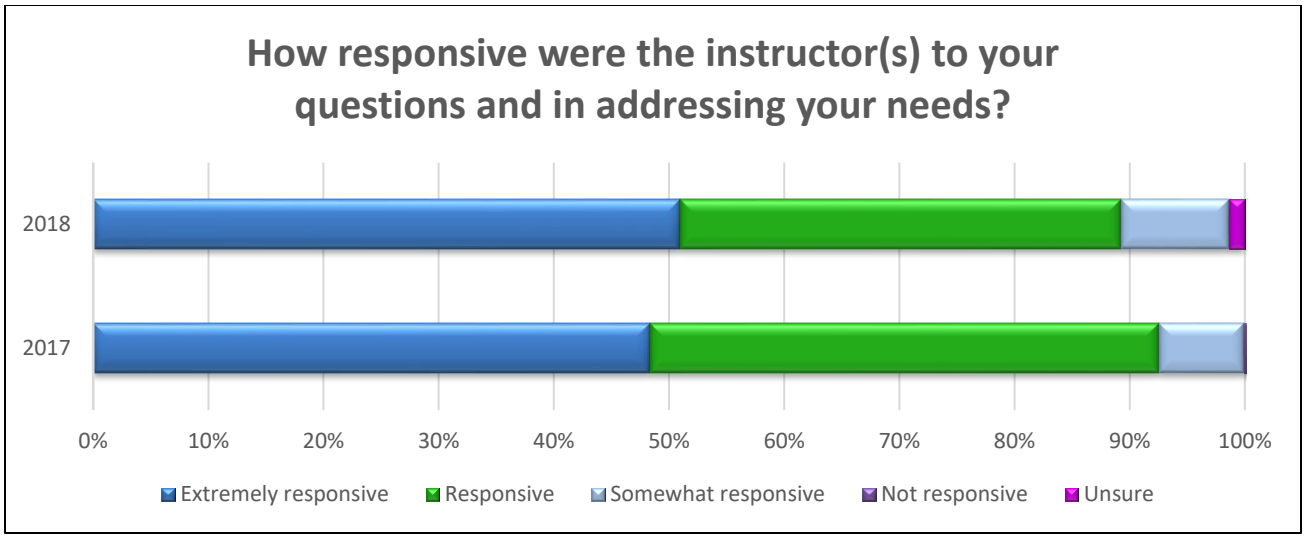
Program	2011-2016	2016-2018	Average Increase
Online Precision Machining	86.5%	86%	.6%
Online Robotics	72.8%	75.5%	3.7%

The average increase is 2.2%.

Student survey responses identify quality instructors as one key element to student success in the TEAM SD advanced manufacturing programs. Three questions on the 2017 and 2018 student surveys asked students to rate instructor effectiveness. At least 89% of students indicated that instructors were “extremely effective” or “effective” in each area.







Focus group comments also indicate that quality instructors are a key to the advanced manufacturing program success. When asked to identify the strength of their programs, focus group students agreed that instructors were key as is evidenced by student quotes listed below.

- Teachers are a big strength of the program. Just the way they teach is very unique.
- The teachers just throw you in. If you have to figure it out on your own, you learn it better.
- The teachers do a good job of understanding people's needs and helping the people who need it and letting the people who are capable figure more out on their own.

Advanced manufacturing students responding to the student surveys indicate a high degree of overall satisfaction with the advanced manufacturing programs. Eighty-nine percent of responders in both years said they were "extremely satisfied" or "satisfied" with the quality of their experience in the program.

Summary: Two content expert positions were created using grant funds, an Instructional Designer and Technology Integrationist. They worked with instructors to implement best practices and to expand the use of simulation and visualization in advanced manufacturing courses. During the final year of the grant, the Instructional Designer took another position and the Technology Integrationist was reassigned to another LATI position. Though neither position will be maintained, the Technology Integrationist continues to respond to instructor questions and needs and Tech Bytes is still being offered for all staff. Course materials are reviewed and revised annually with input of advisory board members and state-of-the art labs are maintained. This attention to workforce needs results in 99% placement of graduates. An Online Student Success Coach was hired to address the unique needs of online students and this position will be maintained. LATI invested TAACCCT Round 4 funds to improve servers and expand storage space. Additionally, eight welding stations were added to accommodate the increasing enrollment of welding students. **Goal 2 strategies/activities are assessed as institutionalized.**

Goal 3: Demonstrate Improved Employment Outcomes

Goal three was accomplished by focusing efforts on retention services, career counseling, and extended support to students past graduation and into employment. Though a retention coordinator has been on staff at LATI for several years, the addition of an Online Student Success Coordinator improved retention of students in online advanced manufacturing courses by an average of 2.2% in two years. The goal of the counseling services provided by LATI is to "promote student success and retention by helping students reach their educational and personal goals and by being a resource for other services available in the community". Though LATI's diversity rate is only 4.4% (Watertown's diversity rate is 5.4%), they recognize the unique challenges of student of color and address them through a variety of services, including student activities that support multicultural awareness.

Attention to improved employment outcomes continue to be a part of the day-to-day work at LATI and is focused on by Advisory Boards, Higher Learning Commission, and the Strategic Planning Committee.

Employment Outcomes

This data was obtained from LATI Placement Reports. Data was gathered by the Career Center Coordinator and program instructors through student and employer surveys administered in person, by mail, and by telephone. The average survey response rate during the years reported was 97.9%. Employment outcomes are reported as graduates employed in field of study, employed not in field of study, continuing their education, or in the military. The data reflects

the graduates' status approximately six months after graduation. The tables and charts below compare the average employment rates and hourly wage increases for grant funded program participants before and after intervention activities were implemented. It is important to note that employment and wage data for 2017-18 was not available at the time the report was submitted.

Employment Rates for Team SD Programs						
Program	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Elec/Robotics	100%	92.9%	90%	100%	100%	100%
Energy Ops	100%	100%	100%	100%	80%	100%
HPEM	*	*	*	100%	100%	100%
Precision Mach.	92.3%	100%	100%	100%	100%	100%
Welding	100%	97.4%	100%	97.5%	100%	98.4%

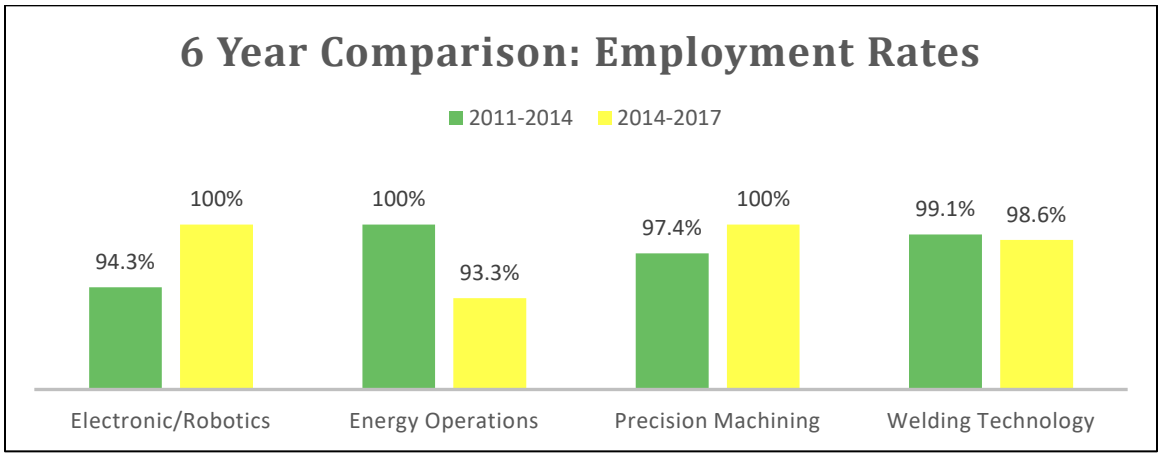
***HPEM established in 2012-13. Employment data not available until 2014-2015**

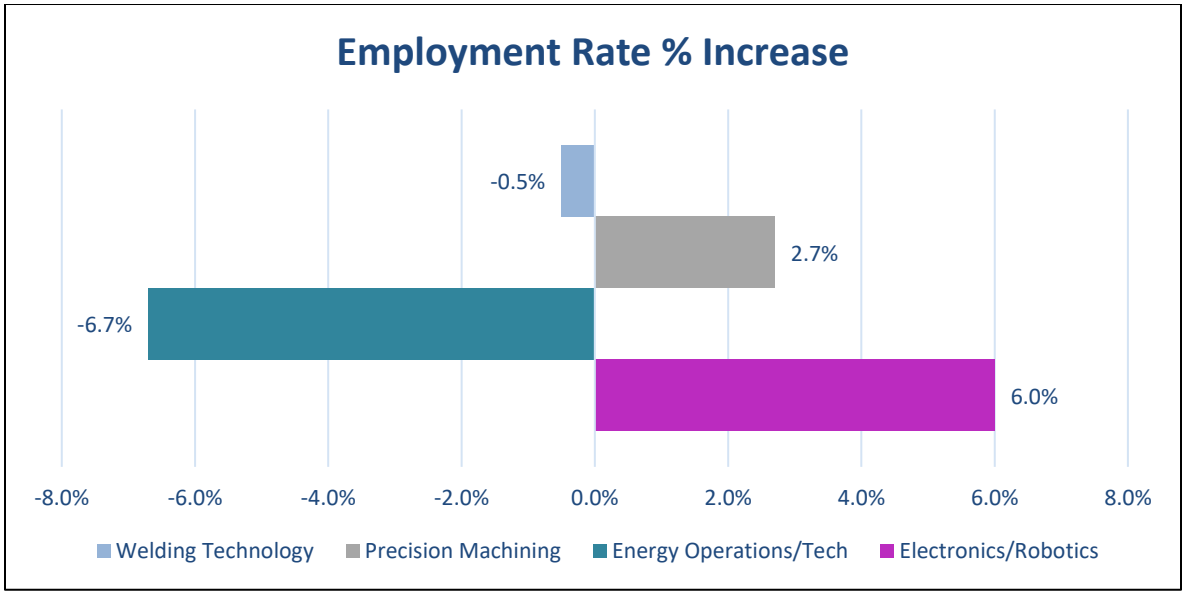
Average Hourly Wages After Six Month of Employment for TEAM SD Programs						
Program	**20011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Elec/Robotics	$14.40	$22.49	$23.07	$25.66	$22.01	$24.47
Energy Ops	$17.11	$23.75	$25.63	$26.70	$20.18	$24.83
HPEM	*	*	*	$16.90	$17.44	$15.58
Precision Mach.	$15.71	$22.90	$18.59	$22.79	$22.86	$19.39
Welding	$16.61	$16.34	$16.44	$18.18	$16.90	$18.31

***HPEM established in 2012-13. Wage data not available until 2014-2015**

Employment Rate Average Increases Comparisons			
Program	**2011-2014**	**2014-2017**	**Average % Rate Increase**
Elec/Robotics	94.3%	100%	6.0%
Energy Ops	100%	93.3%	-6.7%
HPEM	*	100%	*
Precision Machining	97.4%	100%	2.7%
Welding	99.1%	98.6%	-.5%

- **HPEM established in 2012-13. Employment rate data not available until 2014-2015**

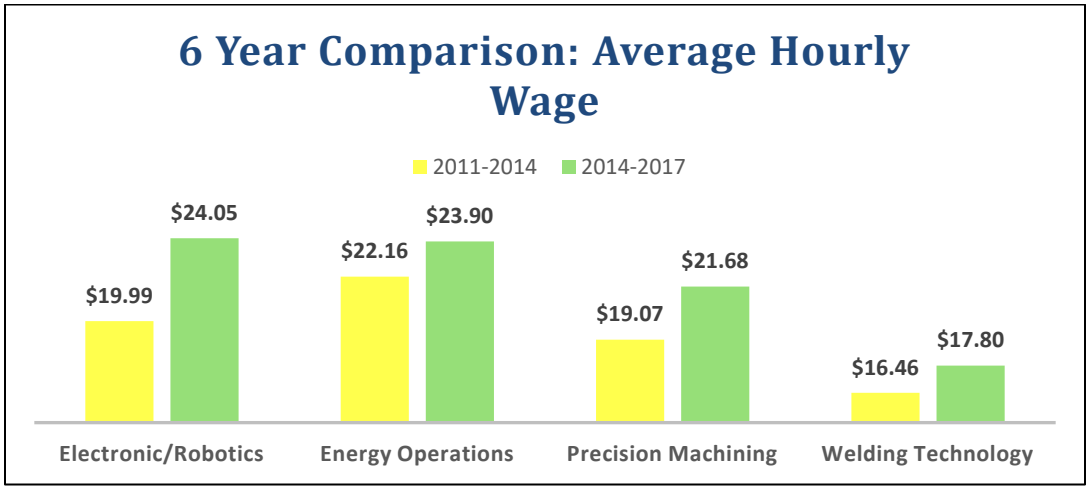


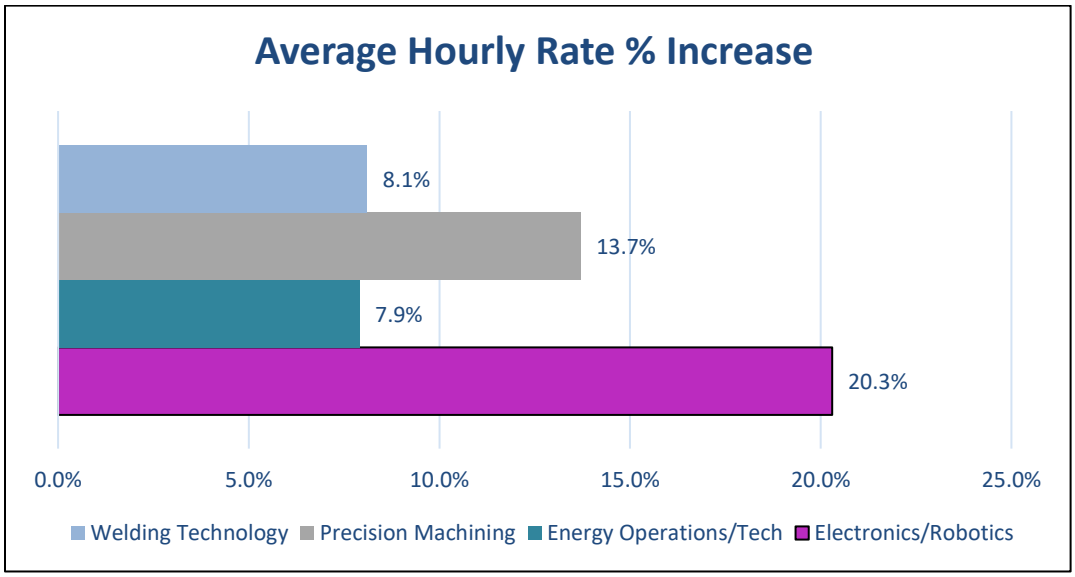


Average increase .4%

Average Hourly Wage Increases Comparisons			
Program	**2011-2014**	**2014-2017**	**Average % Increase**
Elec/Robotics	$19.99	$24.05	20.3%
Energy Ops/Tech	$22.16	$23.90	7.9%
HPEM	*	$16.64	*
Precision Machining	$19.07	$21.68	13.7%
Welding	$16.46	$17.80	8.1%

*** HPEM established in 2012-13. Wage data not available until 2014-2015**





Average increase 12.5%

Summary: LATI staff and faculty define success as assisting students from admissions to placement which results in a 99% placement rate for LATI graduates. Employment information is completed and published on the Employment Results Scorecard annually. Employment rates for two of the five grant funded programs increased compared to the same program employment rates prior to the onset of grant activities. Average hourly wage increased in four of the five grant-funded programs. (HPEM launched in 2012-2013 so data for comparisons not available.) **Goal 3 strategies/activities is assessed as institutionalized.**

Evaluation Questions

Curriculum Design and Delivery

How was the particular curriculum for the advanced manufacturing programs selected, used and or created?

Curricula for the five advanced manufacturing programs were revised with the input of advisory board members in order to more closely align student learning experiences to workforce needs. In addition, a variety of simulations were incorporated to provide a more realistic and hands-on experience for students. Lab equipment and materials were upgraded to enhance instruction and ensure that students were learning skills on industry standard equipment.

How was the curriculum for the advanced manufacturing programs improved or expanded using grant funds?

- Electronics/Robotics: The Electronics/Robotics program enhanced the curriculum by purchasing a Yaskawa MotoMan Robot, Fanic robots, 3D printers, and new simulation software, EveryCircuit, which allows students to practice skills. Curriculum changes occurred as a result of advisory board input including adding more HMI (Human Machine Interfaces) and programing time for students. Additionally, an online Electronics/Robotics instructor was hired and funded with grant dollars.
- Energy Operations: The Energy Operations program enhanced the curriculum by updating hand tools and hydraulic trainers. The wind turbine was updated and is now usable. The program added a solar tracker and software packages for simulations as well as new computers and screens. A plated distillation column was purchased.
- High Performance Engine Machining: The High Performance Engine Machining program used grant funds to purchase three new automated machines that are industry standard: a cylinder hone, a cylinder head, and a dynometer. Grant funds were used to

support the HPEM instructor attending a PRI (Performance Racing Industry) national tradeshow in Indianapolis.

- Precision Machining: The Precision Machining program purchased two VF1 Haas horizontal mills and a High Speed Tilting Sigma 5 2-Axis Rotary Table. In addition to equipment, one online instructor was hired to accommodate increasing enrollment. The "Learn Where You Earn" model was implemented and expanded in the final year of the grant. Three new businesses have shown interest in participating in this model in the fall.
- Welding: The Welding program has enhanced curriculum by purchasing 6 RealCareer WELD Guidance System visualization helmets and an IGM Welding Robot, the same robot industry uses. Other purchases include acorn tables, B welders, and new wire feed leads. Due to increased enrollment, an additional 8 welding booths were added to the lab. Welding curriculum was revised to include weld procedures recommended by advisory board members. Also at the advice of the advisory board, the welding curriculum increased the emphasis on safety. One additional instructor was hired using grant-funds.

What support services and other services were offered?

Two positions were funded to provide specific support to advanced manufacturing instructors, an instructional designer and a technology integrationist. The instructional designer and the technology integrationist assisted instructors in identifying and incorporating best practices as well as visualization and/or simulation software. In addition to the one-on-one assistance, the instructional designer and technology integrationist offered monthly "Tech Bytes" sessions that covered a variety of relevant technology topics and were available to the entire instructional staff. They also worked closely with the online grant program instructors in developing effective online instructional methods. The course mapping process designed in TAACCCT Round 2 was used to assess face-to-face courses and Quality Matters was utilized to assess online courses.

TAACCCT Round 1 student support services were leveraged in Round 4 including counseling, academic advisors, disability services, and a diversity staff. Student services options were expanded including hiring an Online Student Success Coach (OSSC) to provide support to online students from admissions to employment. Hiring an Online Student Success Coach was a direct result of TAACCCT Round 1 learning that online students need a different kind of support to be successful.

Participant Selection

Was an in-depth assessment of participants' abilities, skills, and interests conducted to select participants into the grant program? What assessment tools and processes were used?

Grant participants were selected on the following critiera:

- Enrolled in one of the grant funded programs of study
- First or second year student

All students in the advanced manufacturing courses selected to be included in TEAM SD are considered grant participants. Two tests are used as indicators of success prior to students being admitted to programs at LATI: the ACT, a national college admissions examination that consists of subject area tests in English, Mathematics, Reading, and Science and COMPASS which tests student knowledge in Mathematics, Reading, and Writing.

Additionally, LATI uses the National Career Readiness Certificate (NCRC) to guage student success through a pre- and post-assessment process once students are admitted to a program of study. The NCRC is "an industry-recognized, portable, evidence-based credential that certifies essential skills necessary for workplace success." Utilizing this test improves career outcomes for students and employers.

Administrative Structures

What was the program administrative structure?

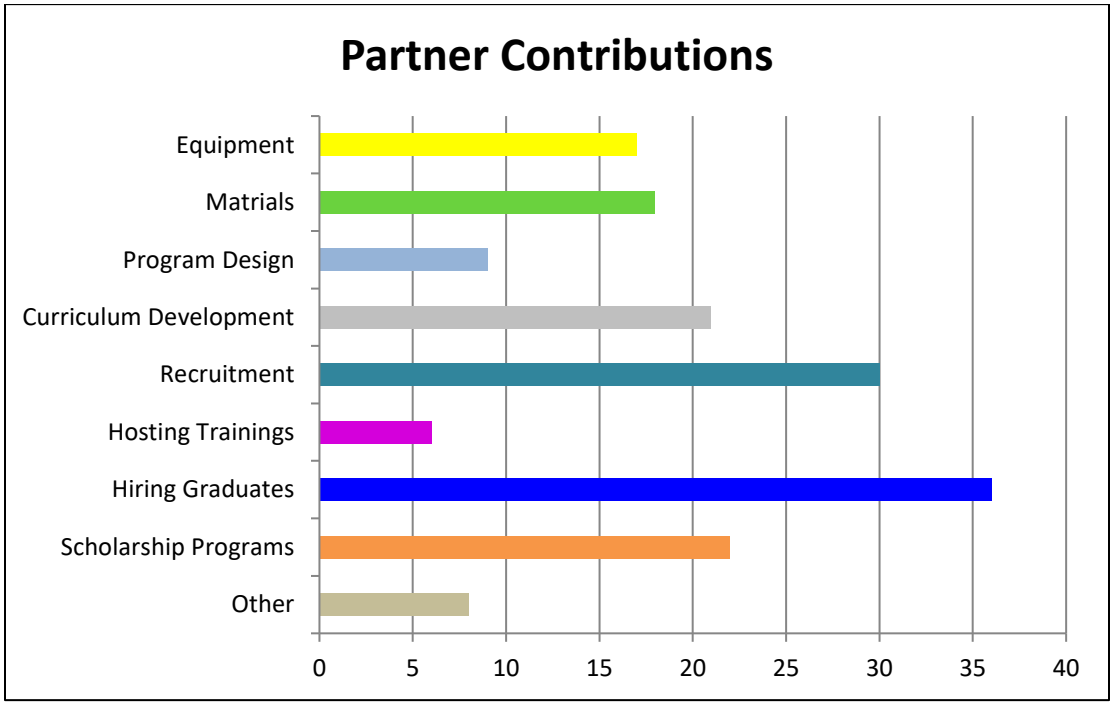
The TEAM SD project implementation is under the supervision of LATI Vice President, Diane Stiles. The Grant Manager, Terri Cordrey; Dean of Academics, Kim Bellum; and Director of Student Services, LuAnn Strait, share the responsibility for overseeing grant staff. Grant decisions are made by a leadership team comprised of the LATI President, Michael Cartney, LATI Vice-President, Diane Stiles, and Grant Manager, Terri Cordrey.

Partner Relationships

What contributions did each of the partners make in terms of:

- **program design**
- **curriculum development**
- **recruitment**
- **training**
- **placement**
- **program management**
- **leveling of resources**
- **commitment to program sustainability**

Throughout the grant funded period the evaluation team attended 17 advisory board meetings and distributed Advisory Board Member Surveys to those in attendance. **Fifty-four** advisory board members responded to the survey. Responders were asked to identify all the ways their company contributed to the LATI advanced manufacturing programs and responses are represented in the following chart. In the comment section of the survey, advisory board members also identified donating time and providing internships to students as contributions to the TEAM SD effort.



Program Design and Curriculum Development

The relationship between LATI and their business partners is strong. According to the 2017 Aspen Prize Publication, **"LATI leaders have developed an uncommonly coherent system for technical education, one in which industry is more deeply embedded in the campus culture and practices than perhaps anywhere in the country."**

Each program at LATI has an advisory board comprised of business partners who volunteer their time twice a year to attend advisory board meetings. During those meetings, business partners provide input crucial to maintaining robust program design and curriculum relevant to workforce needs. The evaluation team attended 17 advisory board meetings during the grant period. A review of the notes from those meetings and other notes provided by LATI reveal that program design and curriculum development is a primary topic at each meeting and the curriculum was revised and/or approved by the advisory board members at 6 of the 17 meetings attended by the evaluation team. In addition to the input by the advisory board members, instructor interviews revealed that ongoing communication with business partners also contributes to maintaining curriculum highly responsive to industry needs.

Recruitment

Enrollment has increased in all five advanced manufacturing programs. Advisory board members and business partner recruitment efforts are evident in advisory board meeting notes. Recruitment is generally a topic of discussion with advisory board members providing suggestions on innovative ways to recruit students. Two advisory board members agreed to visit local high schools in their area to recruit students and business partners are invited to participate in LATI sponsored recruitment events. One industry offered to enclose LATI recruitment flyers in their packing boxes.

Placement

Since LATI's overall placement rate is 99.2% and the average placement rate of the five advanced manufacturing programs is 98.6%, placing graduates is not an issue. The TEAM SD work focused on the advanced manufacturing field to help meet the demand of workforce needs. Therefore, it is not surprising that thirty-six of the fifty-four advisory board members said their company contributes to the advanced manufacturing programs by hiring LATI graduates. One advisory board member suggested that LATI maintain a list of graduates and past graduates that might be accessed when openings occur during the year.

Resources

Manufacturing industries need quality employees and so have a vested interest in donating equipment and materials to support the advanced manufacturing programs. Instructors requested material/equipment needs during four advisory board meetings attended by the evaluation team. Advisory board members offered to donate material/equipment once and requested that the instructor develop and share a list of needs. Thirty-five advisory board members identified contributing materials and/or equipment on the Advisory Board Survey.

Hiring Graduates

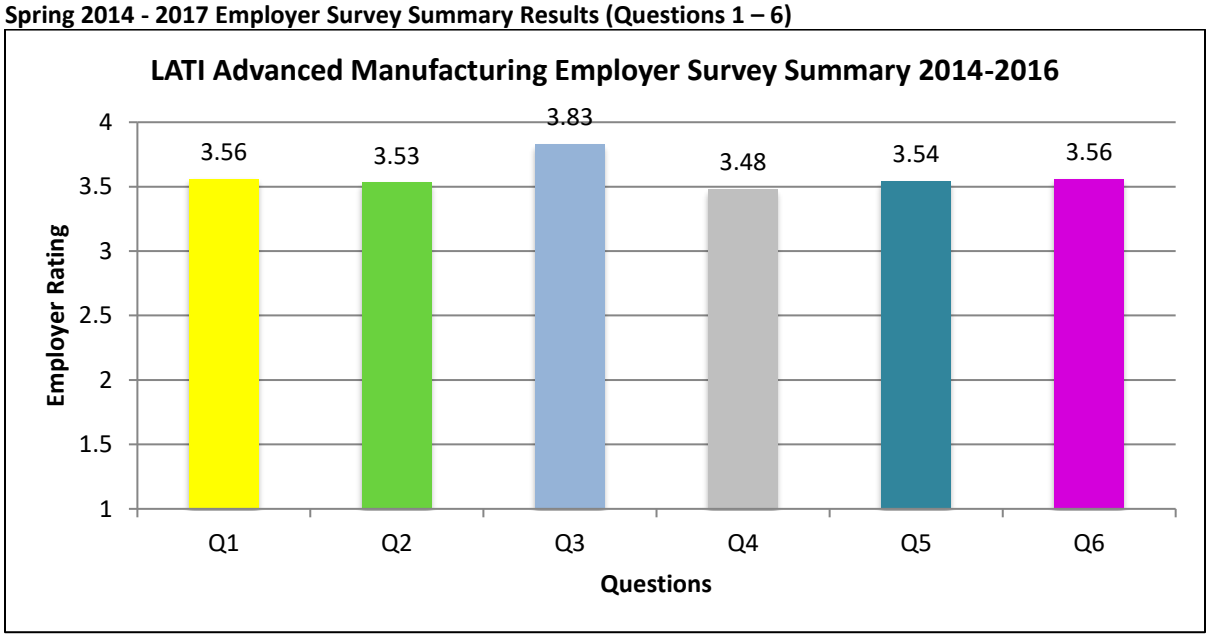
Thirty-six of the responders reported they had hired LATI graduates. Instructor interviews confirm that quality employees are in short supply in many manufacturing companies and they could use more quality applicants. The LATI Employer Surveys (administered every other year by LATI staff to employers of LATI graduates) and the Advisory Board Surveys (administered by the LATI Evaluation Team at advisory board meetings) indicate a high degree of employer satisfaction with the performance of LATI graduates.

LATI Graduates Employer Survey (Spring 2016) Questions 1 – 6

Question stem: Does the LATI graduate…

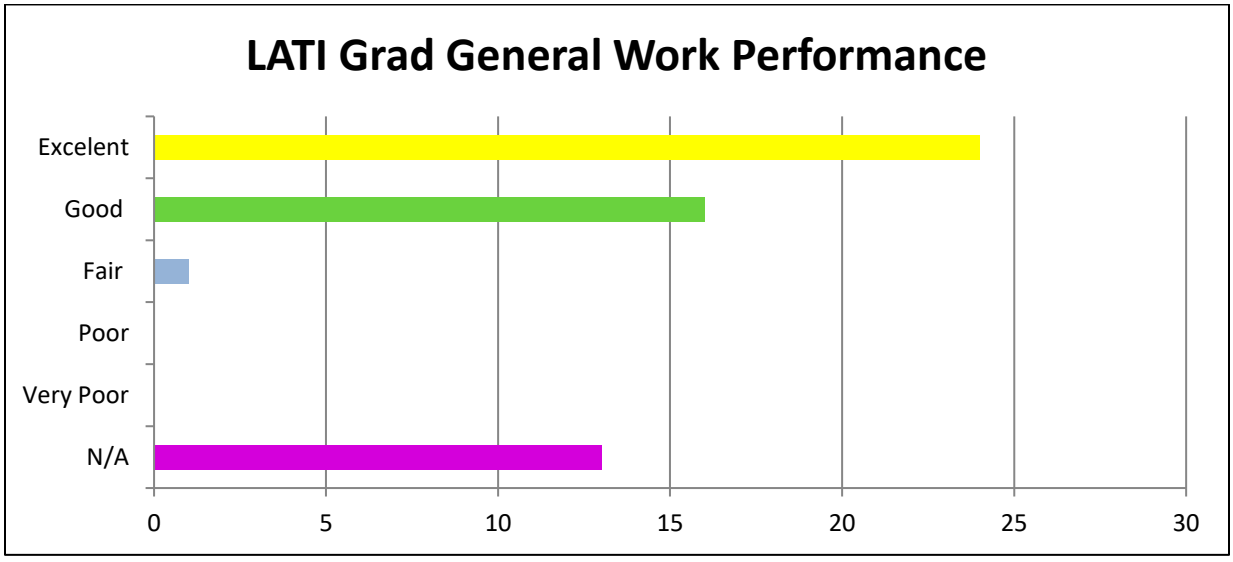
1. display the occupational skills you expect?
2. demonstrate the work habits (i.e. responsibility, work ethic, attendance etc.) you expect?
3. display appropriate interactions with clients and co-workers?
4. analyze situations and demonstrate problem solving?
5. communicate effectively through reading, writing, speaking, and listening?
6. effectively use information from a variety of sources?

Spring 2014 - 2017 Employer Survey Summary Results (Questions 1 – 6)



Advisory board members' responses to Question 4 on the Advisory Board Survey administered by the evaluation team. **If your company hired LATI graduates since 2014, how would you rate their work performance? N-54**

Advisory Board Member Survey: Question 4



Scholarship Programs

In an attempt to address the gap in qualified workers in South Dakota, the Build Dakota Scholarship fund was established in 2016 by the state of South Dakota to provide technical school students opportunities to train for high-wage, high-skill employment or re-employment at no cost to the students. The state of South Dakota matched a 25 million dollar donation by philanthropist Denny T. Sanford. In return for the full-ride scholarship, students agree to work in South Dakota for 36 months following graduation. Four of the five advanced manufacturing program students were eligible to apply for a Build Dakota Scholarships. In order to expand the impact of the Build Dakota Scholarship Program, LATI developed the "Stretch the Million" Program in which business partners sponsored Build Dakota students paying half of their educational costs. This has allowed LATI to expand the impact of the Build Dakota Scholarship Program beyond the five-year implementation period.

What factors contributed to partners' involvement or lack of involvement in the program?

In an open-ended question, advisory board members were asked "What factors, if any, limit your participation in advisory board meetings?" Fifty-three of the fifty-four responders commented on the question. Twenty-three responders identified "time" as the single issue preventing them from participating. Twenty-eight responders said there were no factors limiting their participation. As one responder said, "I make the time."

Which contributions from partners were most critical in the success of the grant program?

Business partners are an integral part of the educational system at LATI. Business partners shape curriculum, provide resources to support education/training, offer internships, provide scholarships, serve as mentors, volunteer their time, and hire LATI graduates. **Interviews with project leaders and instructors in both 2016 and 2018 identified business partner involvement in curriculum design and development as their most critical contribution.** One instructor commented, "Basically, we don't do anything (make any curriculum changes) without having a conversation with partners and getting their approval."

Institutional Capacity

In what ways did the implemntation of the grant enhance insittutional capacity?

Enhanced institutional capacity was analyzed using interview data and is evident a variety of ways.

- Grant funds partially funded ten full-time staff and/or faculty positions, including three additional advanced manufacturing instructors. Many of these positions will be sustained.

Positions Funded Using TAACCCT Grant Round 4 Funds

Position	TAACCCT Round 4 Funds	Registered Apprenticeship Funds	LATI Funds
Grant Manager	85%	10%	5%
Finance Officer	35%		65%
Business Partner Specialist	90%	10%	
Online Student Success Coach	60%		40%
Brookings	50%		50%
Database/LMS Developer	100%		
Electronics/Robotics Instructor	100%		
Precision Machining Instructor	100%		
Welding Technology Instructor	100%		

- LATI technology infrastructure was upgraded with the purchase of an additional server and increased storage capacity. Additionally, facilities were upgraded. Grant funds were used to rennovate the welding area adding eight welding booths.
- Student services options were expanded including hiring an Online Student Success Coach. Due in part to the efforts of the Online Student Success Coach, retention of online students is increasing.
- Industry standard equipment was purchased and/or upgraded.

Equipment and Software Purchased Using TAACCCT Grant Round 4 Funds

Description	Department
Simulation Software – Plant Operations	Energy Operations Department
Windmatic 17S 95 KW Wind Turbine	Energy Operations Department
Rottler Diamond Cylinder Honing Machine	High Performance Engine Machining Department
Rottler Cylinder Head Seat and Guide Machine	High Performance Engine Machining Department
HP Store Virtual 4530 600GB SAS Storage	IT Department
HP Gen 8 Server	IT Department
High Speed Tilting Sigma 5 2-Axis Rotary Table	Precision Machining Department
Nakamura tome CNC Lather	Precision Machining Department
Fadal 3016 2 Axis Vertical Mill Center	Precision Machining Department
Fadal VMC 20 Vertical Mill Center	Precision Machining Department
Yaskawa Motoman Robot	Robotics Department
6 - RealCareer WELD Guidance System	Welding Department

- Simulation software is continuously assessed and upgraded and helps align advanced manufacturing coursework to industy standards. Online education software that supports instructors' work has been purchased and implemented.

The eight deliverables identified in the TEAM SD work plan have been completed.

Deliverables

Deliverables

Deliverable	Completed	Comments
Marketing Campaign	Yes	To increase impact, the marketing campaign was created in conjunction with the Build Dakota Scholarship Program and includes information about registered apprenticeships. Print and media marketing resources were created and distributed. A Student Recruitment Plan, a Social Media Plan, and a Workforce Development Play Book have been created.
"Learn Where You Earn" formerly "Grow Your Own" Business Model	Ongoing	The "Learn Where You Earn" business model is currently being implemented in two sites and discussions are underway to incorporate additional industries and student/employees. This model will be an ongoing addition to LATI's program offerings.
Career Pathways	Yes	A visual representation of career pathways have been updated and published to each program's website, as well as to the South Dakota Department of Labor and Regulation website. The South Dakota Department of Labor and Regulation is overseeing the implementation of a statewide Career Pathways Roadmap.
Continuous Improvement Publication	Yes	Grant programs of study are being monitored for the Higher Learning Commission's (HLC) program accreditation cycle. The Continuous Improvement Publication (HLC Assurance Argument) has been published.
Course Curriculum Materials	Ongoing	The course mapping process designed in TAACCCT Round 2 is being used to assess face-to-face courses and Quality Matters is being utilized to assess online courses. Additionally, all course curricula are reviewed at advisory board meetings and changes are incorporated according the advisory board members input.
Student Success Toolkit and TED Model	Yes	An Online Student Success Coach was hired to assist online students from admissions to employment. Student Success Toolkit and TED strategies appropriate for LATI have been successfully integrated into the grant-funded programs.
Employment Results Scorecard	Ongoing	LATI is required to annually submit data required for the Employment Results Scorecard to the South Dakota Department of Education. Individual reports are also published on each program's webpage.
Third Party Evaluation	In Progress	The final evaluation report will be submitted on time.

Participant Impacts and Outcomes

When determining the extent to which the TEAM SD project met the outcome measure goals, target numbers were compared to the actual numbers reported by LATI on Annual Performance Reports. **All outcome measures meet or exceed** the target numbers with the exception of outcome measure #10, **Total Number of Those Em[ployed at Enrollment Who Receive A Wage Increase Post-Enrollment**. Year four numbers for employment outcomes #8-10 were not available at the time the final evaluation report was submitted. Please note the following numbers are not considered outcome measures so no target numbers were identified. These numbers are reported in the Annual Performance Report: 2a, 4, 5 6a, 6b, and 6c.

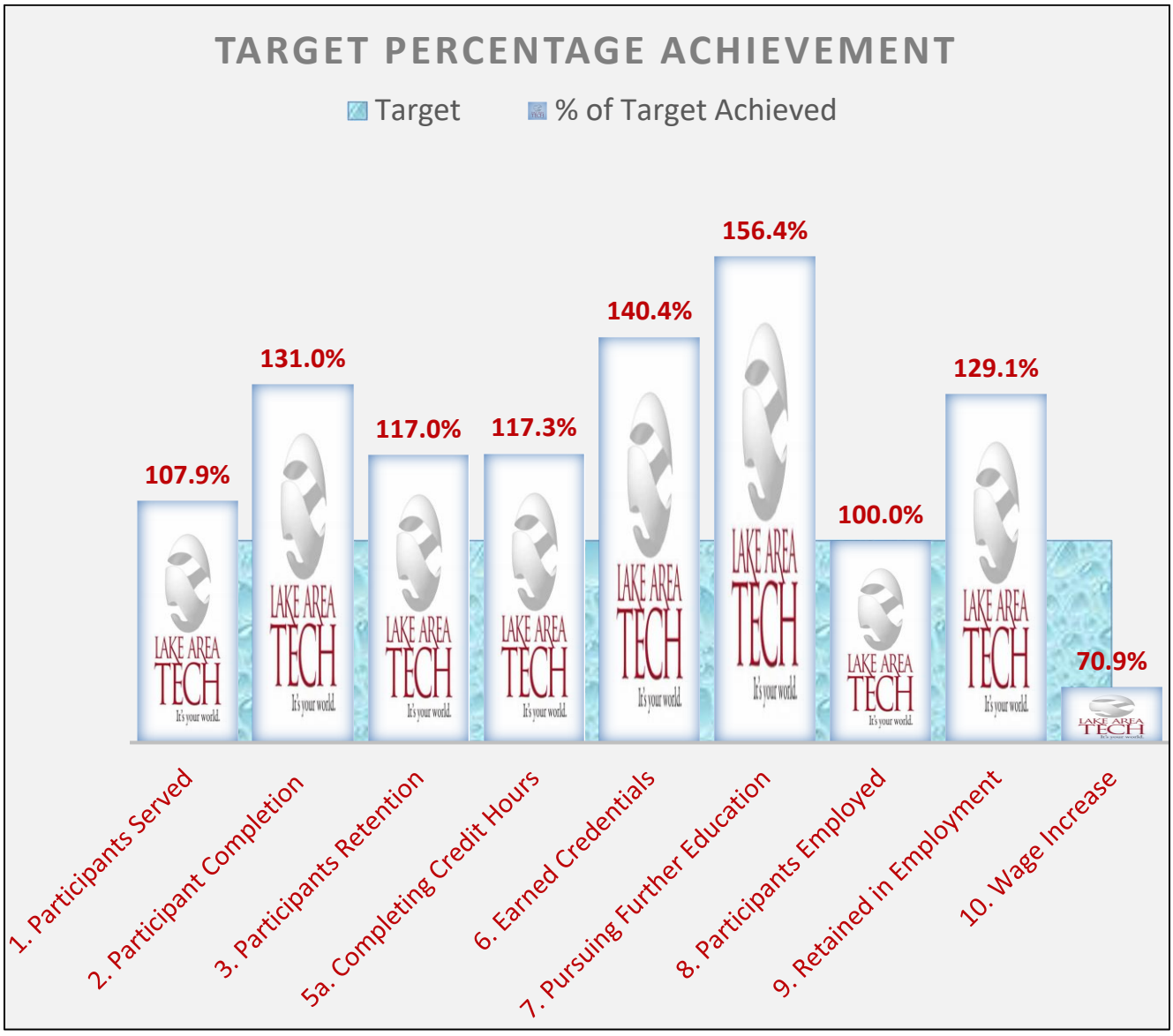
Outcome Measure Target Attainment

Outcome Measure	Target	Actual/% of Total	Goal/Actual Total	% of Target Achieved
1. Total Unique Participants Served	Year 1: 240 Year 2: 132 Year 3: 136	Year 1: 291* (57%) Year 2: 116 (80%) Year 3: 136 (107%)	**508/543**	**107.9%**
2. Total Number of Participants Completing a TAACCCT-Funded Program of Study.	Year 1: 50 Year 2: 78 Year 3: 81	Year 1: 73 (35%) Year 2: 86 (76%) Year 3: 114 (131%)	**209/273**	**131.0%**
2a. Total Number of Grant Funded Program of Study Completers Who Are Incumbent Workers.		Year 1: 26 Year 2: 57 Year 3: 54	**137**	
3. Total Number of Participants Still Retained in Their Program of Study (or Other Grant-Funded Program)	Year 1: 135 Year 2: 193 Year 3: 159	Year 1: 191 (39%) Year 2: 193 (79%) Year 3: 186 (117%)	**487/570**	**117.0%**
4. Total Number Retained in Other Education Program(s).		Year 1: 1 Year 2: 0 Year 3: 2	**2**	
5. Total Number of Credit Hours Completed (aggregate)		Year 1: 4336 Year 2: 6208 Year 3: 5806	**16,350**	
5a. Total Number of Students Completing Credit Hours	Year 1: 225 Year 2: 117 Year 3: 121	Year 1: 163 (35%) Year 2: 200 (78%) Year 3: 180 (117%)	**463/543**	**117.3%**
6. Total Number of Earned Credentials	Year 1: 50	Year 1: 82 (36%)	**225/316**	

(aggregate)	Year 2: 94 Year 3: 81	Year 2: 98 (80%) Year 3:136 (140%)		**140.4%**
6a. Total Number of Students Earning Certificates – Less Than One Year (aggregate)		Year 1: 41 Year 2: 38 Year 3: 44	**123**	
6b. Total Number of Students Earning Certificates – More Than One Year (aggregate)		Year 1: 0 Year 2: 0 Year 3: 0	**0**	
6c. Total Number of Students Earning Degrees (aggregate)		Year 1: 41 Year 2: 60 Year 3: 92	**193**	
7. Total Number of Participants Pursuing Further Education After TAACCCT-Funded Program of Study Completion.	Year 1: 15 Year 2: 20 Year 3: 20	Year 1: 26 (47%) Year 2: 34 (109%) Year 3: 26 (156%)	**55/86**	**156.4%**
8. Total Number of Participants Employed After TAACCCT-Funded Program of Study Completion	Year 1: 12 Year 2: 19 Year 3: 20 Year 4: 20	Year 1: 7 (10%) Year 2: 28 (49%) Year 3: 36 (100%) Year 4:	**71/71**	**100.0%**
9. Total Number of Participants Retained in Employment After Program of Study Completion	Year 1: 0 Year 2: 11 Year 3: 18 Year 4: 19	Year 1: 0 (0%) Year 2: 28 (58%) Year 3: 34 (129%) Year 4:	**48/62**	**129.1%**
10. Total Number of Participants Employed at Enrollment Who Receive a Wage Increase Post-Enrollment	Year 1: 73 Year 2: 75 Year 3: 78 Year 4: 39	Year 1: 36 (14%) Year 2: 71 (40%) Year 3: 81 (71%) Year 4:	**265/188**	**70.9%**

*Includes students enrolled at the time of the grant award in October 2014 who returned for Spring semester 2015, as they met the TAACCCT definition of "participant". The number also includes newly enrolled students in August 2015 as the cutoff for year 1 reporting was September 30, 2015. In effect, two cohorts of students were counted as participants in year 1.

The chart below is the visual representation of the Outcome Measure Table above. The numbers on the horizontal axis align to the outcome measure numbers in the table.



Historical Data

The historical course analysis focused on three indicators: 1) enrollment, 2) graduation rate, and 3) time to completion and included courses in advanced manufacturing that were in existence for the three years prior (2011-2012; 2012-2013; 2013-2014) to the onset of the TEAM SD program. It is important to note that the High Performance Engine Machining program was initiated during the 2012-2013 school year and no data for that program exits prior to that school year.

LATI provided the raw data for the development of the following tables and charts that depict enrollment and graduation and retention data.

Historical Data: Enrollment (student enrollment is counted in the first year of enrollment)

Historical Data Enrollment Comparisons

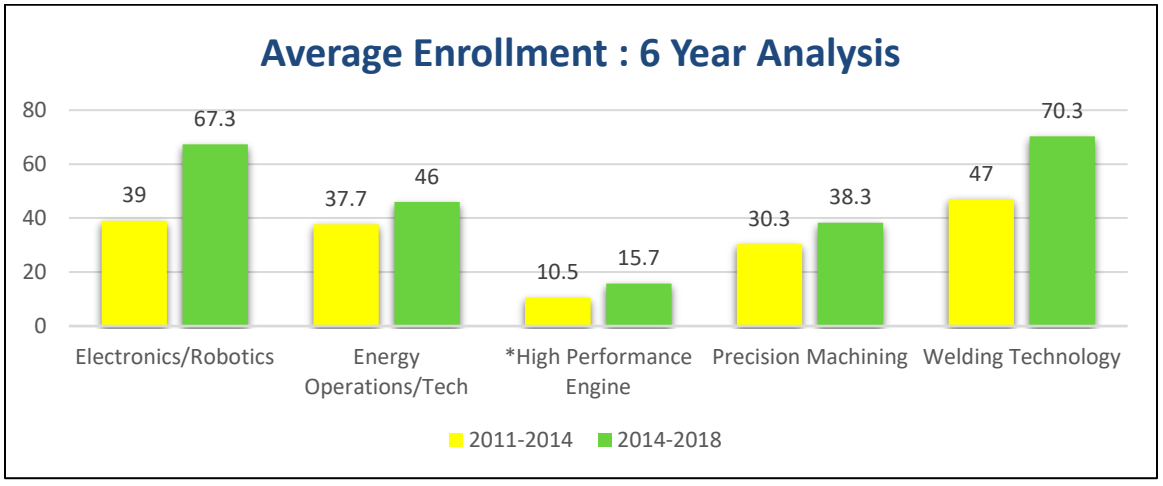
Program	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Electronics/Robotics	34	39	44	66	70	66
Energy Operations	36	39	38	49	50	39
High Performance Engine	*	5	16	14	14	19
Precision Machining	24	29	38	43	32	40
Welding Tech	52	44	45	59	74	78

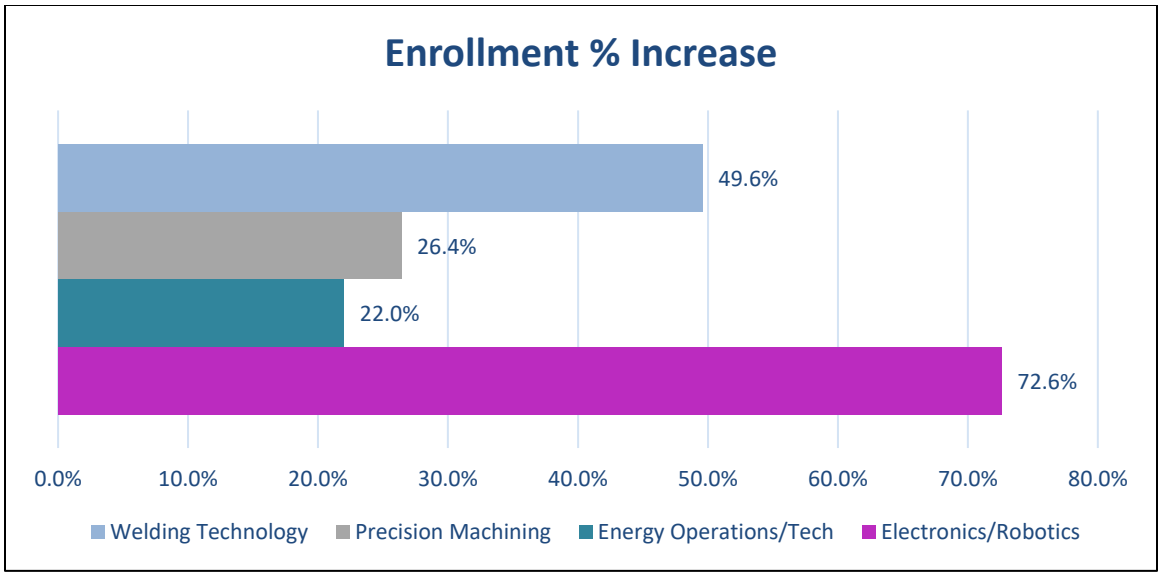
***High Performance Engine Machining Program established in 2012-13**

Historical Data Enrollment Averages

Program	Average Enrollment 2011-2014	Average Enrollment 2014 - 2018	Percent of Increase
Electronics/Robotics	39	67.3	72.6%
Energy Operations	37.7	46	22.0%
High Performance Engine	*10.5	15.7	*49.5%
Precision Machining	30.3	38.3	26.4%
Welding Technology	47	70.3	49.6%

***High Performance Engine Machining Program established in 2012-2013**





Enrollment rates in all five of the advanced manufacturing programs increased though this would be difficult to contribute to effects of grant implementation. It is likely that having Build Dakota Scholarships available to students in four of the five grant-funded programs contributed to increased enrollment.

Historical Data: Graduation Rate

The table below depicts the number of the students enrolled in an Advanced Manufacturing Program of Study and graduated or retained in the program of study.

Percent of Program Participants Graduated or Retained (enrolled/graduated or retained)

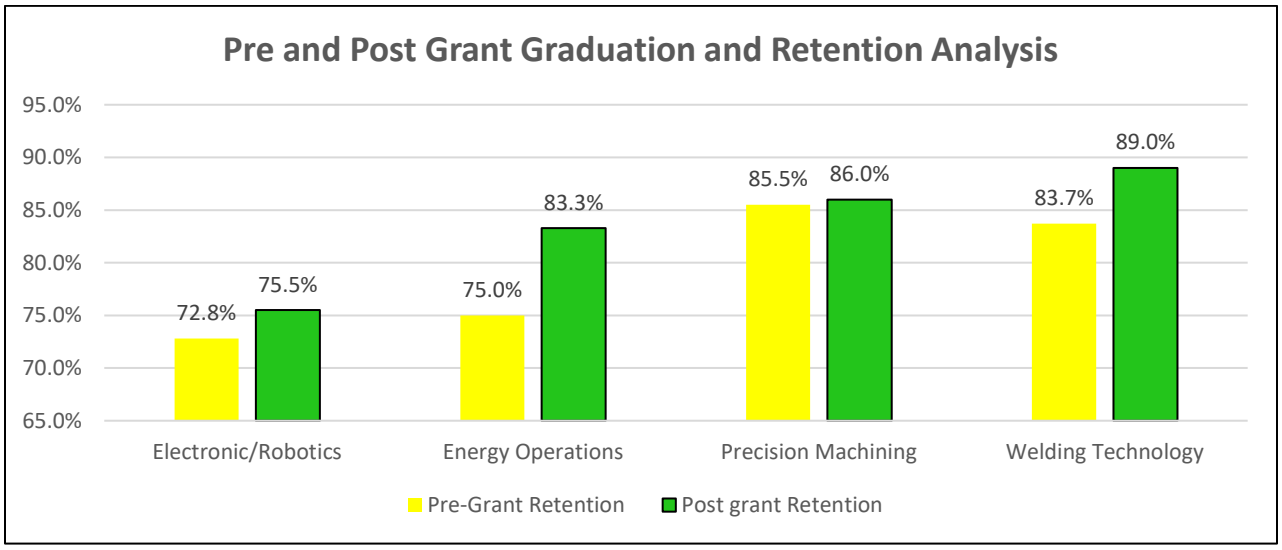
Program	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Electronic/Robotics	67%	72.5%	79%	66.5%	76.5%	83.5%
Energy Operations	75%	80%	70%	73%	86%	91%
High Performance Engine	*	*	100%	63%	79%	86%
Precision Machining	87%	83%	86%	84%	86%	88%
Welding Technology	91%	80%	80%	93%	85%	89%

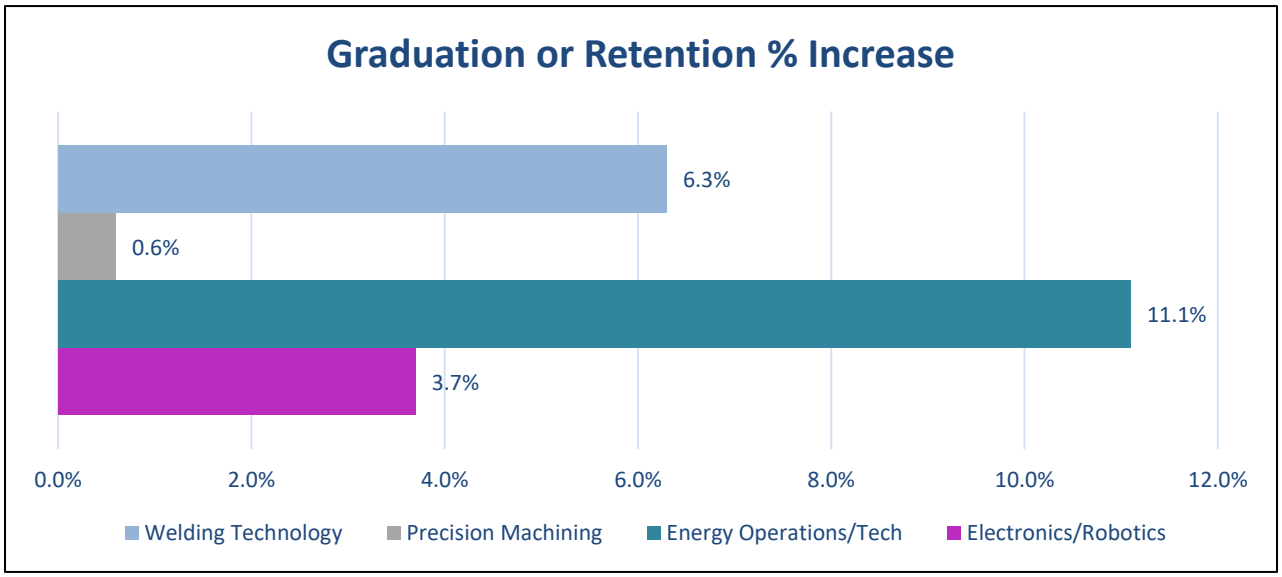
***High Performance Engine Machining initiated in 2012-2013**

Percent of Increase in Advanced Manufacturing Participants Graduated or Retained

Program	2011-2014	2014-2018	Percent of Increase
Electronics/Robotics	72.8%	75.5%	3.7%
Energy Operations	75.0%	83.3%	11.1%
High Performance Engine	*	*	*
Precision Machining	85.5%	86%	.6%
Welding Technology	83.7%	89%	6.3%

***High Performance Engine Machining initiated in 2012-2013**





Average increase: 5.43%

Graduation rates increased in all five grant-funded programs. HPEM data was not included as this program was initiated in 2012-2013.

Historical Data: Time to Completion

There are currently several structures that allow students to advance through course materials at a faster pace. Those include testing out of course materials and skills, receiving credit for prior learning, receiving credit for transcript credits, and receiving credits for dual credits. However, none of these options allow a student to complete a program of study in less time.

TEAM SD Operational Strengths

- Relationships with LATI Industry Partners is a strength of LATI as is evidenced by the following quote in the 2017 Aspen Prize Publication, **"LATI leaders have developed an uncommonly coherent system for technical education, one in which industry is more deeply embedded in the campus culture and practices than perhaps anywhere in the country."** The Business Partner Specialist position was established and expanded as a result of the TAACCCT Round 4 work and continues to focus on maintaining strong relationships with existing industry partners and developing relationships with new partners.
- Another strength of the TEAM SD project is the addition of instructor and student support structures. Instructors were able to work with the newly hired Instructional Designer and Technology Integrationist to enhance their curriculum through attention to best practices and implementation of simulation and visualization software that focused on the specific learning needs of the students in their respective programs. Online students benefited from the addition of an Online Student Success Coach who addressed the unique needs of the online student.
- LATI has an ongoing process for the review and revision of program curriculum resulting in curriculum highly responsive to industry needs. Learning labs supplied with state-of-the-art equipment provide students with learning experiences similar to those they will encounter on the job. Innovative delivery methods like "Learn Where You Earn" provide a unique opportunity to incumbent workers to increase their knowledge and pursue an advanced degree.
- Project leaders and students agree that quality instructors are key in the success of the Advanced Manufacturing Programs of Study.

TEAM SD Operational Weaknesses

- Though there are several structures that allow students to advance through course materials at a faster pace, including testing out of course materials and skills, receiving credit for prior learning, receiving credit for transcript credits, and receiving credits for dual credits, none of these options allow a student to complete a program of study in less time.

Conclusion

1. Project goals, strategies and activities were largely implemented as planned and with quality. Project strategies and activities have been institutionalized.
2. Outcome measures 1 – 9 have met or exceeded target goals. Final numbers for employment outcome measures 8 – 10 were not available when the final report was submitted.
3. The average enrollment, graduation/retention, employment, and wages increased for the grant-funded programs. (HPEM, established in 2012-2013 was not included in the historical analysis.)
4. A variety of grand-funded program enhancements have been made possible with grant funding and partner contributions including industry-standard equipment and technology in each of the identified Advanced Manufacturing Programs of Study that results in work force ready graduates. An expanded technology infrastructure continues to support LATI's capacity for technical education at a distance.
5. Advanced manufacturing program instructors have a long-standing, exceptional relationship with their industry partners. Advisory boards provide regular input to the Advanced Manufacturing Programs of Study resulting in programs closely aligned to industry needs.
6. Innovative educational models such as "Learn Where You Earn" are being implemented in two business sites and options are being explored to replicate this model in other area businesses. This model allows student/employees to pursue an advanced degree accomplishing the theory online and the hands-on lab work at their place of employment facilitated by an onsite mentor.
7. Student surveys and focus group discussion identified quality instructors, labs equipped with industry standard equipment, and access to technology within the industry as key to the success of the Advanced Manufacturing Programs of Study.

Appendix

Appendix – A: Transforming Education for Advanced Manufacturing (TEAM)
Trade Adjustment Assistance Community College and Career Training Grant
***Revised* Evaluation Plan – December 15, 2015**

I. Table of Contents

II. Introduction

The goal of the evaluation of the South Dakota TEAM (Transforming Education for Advanced Manufacturing) program is to provide program leaders, partners, and funders with data-based observations for informing the implementation process and for making judgments about program effectiveness. The evaluation of this program is designed to reflect a formative assessment of the implementation of specific interventions and a summative assessment of the program's outcome measures.

The assessment of the program's implementation and outcome measures will be drawn from the following data sources: deliverables and other products produced by the program; notes and documents generated via program activities; interview, survey, and focus group data from program leaders, partners, participants, and employers, and participant record information provided by Lake Area Technical Institute's (LATI) Data Management System. The Data Management System collects data from *Jenzebar*, the student management system used at LATI. It includes demographic information including TAA eligibility as well as enrollment dates, credits and diplomas earned, employment status, and wage information.

Evaluation methodologies include: examination of the content and the alignment of the deliverables and other products with identified interventions; design, administration, compilation, and analysis of interview, survey, and

focus group results for patterns and themes. A compilation and analysis of numbers of participants associated with the program outcome measures will also be conducted. Periodic reports of the information produced by the evaluation will be provided to program leaders to support ongoing decision-making about the program's progress and effectiveness.

III. Intervention

The Transforming Education for Advanced Manufacturing (TEAM} program will improve employment opportunities in the manufacturing industry for TAA-eligible workers and other low-skilled individuals living in remote, rural locations or communities in South Dakota, Minnesota, and North Dakota. The program will focus on helping to ensure that TAA-eligible workers, the unemployed and under-employed, veterans, recent high school graduates, and dislocated or incumbent workers have the tools needed to pursue an education and career in advanced manufacturing.

Regional leaders in Advanced Manufacturing serve on LATI's advisory committees and offer current knowledge of the industry which helps shape program content. Discussions among these advisory committees have identified the following areas of need to develop and expand regional capacity in manufacturing.

1. **Pipeline Development and Expansion**– update the image of manufacturing, employ innovative approaches to enable TAA-eligible

and fully employed students the ability to simultaneously accomplish their education, market to a diverse population including first generation college students, Native American, Hispanic, women, and the under-employed.

2. **Enhance and Expand the Curriculum with Advanced Technology-Enabled Learning** – leverage Rounds 1, 2, and 3 existing OER resources and other grant deliverables, explore online tutoring and personalized educational experiences, and take the lab to the student by offering off-campus lab sites through employer partners and community facilities.
3. **Accelerated Educational Model** – develop and employ methodologies to better assess occupational experiences and award credit for prior learning and competencies, develop lattice degrees and additional statewide and across-borders articulation agreements.
4. **Employer Relationships and Industry Engagement** – enhance and expand LATI robust industry relationships through the expansion of a business partner specialist position from Round 3 focused on increased job placement, summer internships, and cooperative agreements with industry.

The TEAM program will use a range of interventions to address these needs. Efforts will focus on marketing an improved image of manufacturing to the target population. TEAM leaders will also incorporate promising practices from

previous TAACCCT grants such as the Student Success Toolkit developed in Round 1 and the Technical Education at a Distance (TED) Model developed in Round 2. To ensure effective methods for designing and delivering instruction, TEAM leaders are focused on competency-based education models which include performance based assessments and internship opportunities.

The goals, interventions, and deliverables for the project are listed below.

Goal 1: Increase attainment of degrees, certifications, certificates, diplomas, and other industry-recognized credentials.

Intervention 1*:* Create a marketing campaign utilizing a variety of formats to address employer workforce needs along with enhancing the AM workforce image. **Deliverable 1:** Marketing Campaign Package – including brochures, pamphlets, videos, and social media designed to target grant participants.

Intervention 2: Hire Marketing Assistant to work with the AM Industry and assist with the identification of employers' needs, implementation of sector strategies and the determination of a critical, complex task. **Deliverable 2:** An industry-driven "Grown Your Own" business model. This model will support training and career placement, advocate for policies that facilitate increasing the number of Advanced Manufacturing workers, and coordinate and align innovative partnerships of businesses, technical institutes, universities, and communities. In addition, the "Grow Your Own"

business model will include plans to upskill entry level employees, target potential grant participants with manufacturing camps and AM career fairs, and support the retention of TEAM grant participants. **Intervention 3:** Hire Career Pathways Coordinator to accelerate the time to degree completion and employment through implementing the components of career pathways developed through the TAACCCT grant funded programs. **Deliverable 3:** Career Pathways Model - This is a document showing how prior learning assessments (dual credits, tests, veterans, college credit) apply to earning certificates, diplomas, Associate and Bachelor degrees.

Goal 2: Introduce or replicate innovative and effective methods for designing and delivering instruction.

Intervention 1: Hire Continuous Improvement Coordinator to develop new strategies, or replicate or adapt existing evidence-based strategies and use data for continuous improvement of programs. **Deliverable 1:** Continuous Improvement Publication - this is a document based on LATI's Assurance Arguments and documentation sources for Higher Learning Commission accreditation process. **Intervention 2:** Hire content experts to expand the use of virtualization and simulation in AM courses. **Deliverable 2:** Course Curriculum and Materials for Robotics/Electronics, Energy/Plant

Operations, High Performance Engine Machining, Precision Machining, and Welding.

Intervention 3: Leverage Round 1 Student Success Toolkit and Round 2 Technical Education at a Distance (TED) Model to improve learning completion rates. **Deliverable 3:** Student Success Toolkit and TED Model. - These have been developed from previous TAACCCT grants in South Dakota. The TEAM program will expand and enhance them. For example, the Student Success Toolkit currently focuses on on-campus students and the TEAM program would expand it to support online students.

Intervention 4: Improve technology infrastructure support for educational programs provided by the grant.

Goal 3: Demonstrate Improved Employment Outcomes

Intervention 1: Complete and publish Employment Results Scorecard **Deliverable:** Employment Results Scorecard – This is a publication which includes annual graduation rates, employment rates, employment retention rates, average earnings, and transfer rates of students into four-year programs of study.

Intervention 2: Third Party Evaluation **Deliverable:** Third Party Evaluation Reports

IV. Implementation Analysis Design

To facilitate the implementation analysis, evaluators will gather relevant data from the following three primary sources: 1) program leaders and partners, 2) program participants, and 3) program deliverables and other documentation. Based on examinations of program documentation and deliverables, evaluators will confirm the implementation of each of the interventions associated with the three program goals. Patterns and themes derived from interview and survey data will be examined to identify strengths, weaknesses, and overall fidelity to the program model. Evaluators will participate in quarterly meetings with the program's oversight committee and offer data-based observations, as appropriate, for the consideration of program leaders.as they make decisions about the continuous improvement of the program.

The TEAM program's theory of change includes an emphasis on re-imaging Advanced Manufacturing occupations through marketing efforts in order to increase enrollment in AM programs. Through technology-enabled and competency-based learning, technical assistance from business and industry, and proven student support systems, non-traditional students will complete AM programs and secure improved employment status in a more expedient and streamlined manner. By "upskilling" workers' proficiency with the latest industrial equipment and technology, graduates will help South Dakota increase and strengthen its highly-skilled workforce. The logic model for the TEAM program is listed below and addresses the growing problem that

South Dakota lacks workers for highly-skilled positions in the Advanced Manufacturing industry.

Inputs	Activities	Outputs	Short Term Outcomes	Inter-mediate Outcomes	Long Term Outcomes
LATI Advanced Manufacturing Programs and Advisory Councils, Regional Manufacturers, TAACCCT Round 4 Funds, Industry-grade technologies and equipment.	Advanced Manufacturing Marketing Campaign, Additional Marketing Assistant, Career Pathways Coordinator, and Continuous Improvement Coordinator positions, expansion of virtualization and simulation components of AM courses, expanded use of Student Success Toolkit and TED (Technical Education at a Distance) Model, improved technology infrastructure at LATI, publication of Employment Results Scorecard, Third Party Evaluation.	Marketing Campaign Package, Grow Your Own Business Model, Career Pathways Model, Continuous Improvement Publication, Course Designs and Materials, Student Success Toolkit and TED Model, IT Servers and Storage, Employment Results Scorecard, Third Party Evaluation Reports.	Increased enrollment in AM programs, innovative designs for delivering AM programs, increased institutional capacity at LATI.	Increased numbers of degrees, certificates, diplomas, and other credentials recognized by the Advanced Manufacturing industry. Documented and replicable models of hybrid delivery of AM programs.	Increased numbers of employees working in Advanced Manufacturing industry with increased wages over previous employment.

IV.A. Implementation Analysis Research Questions

The following four research questions, as required in the SGA, represent the core of the implementation analysis for the program.

1. How was the particular curriculum for the Advanced Manufacturing programs selected, used, and/or created?
2. How were programs and program designs improved or expanded using grant funds? What delivery methods were offered? What was the program administrative structure? What support services and other services were offered?
3. Was an in-depth assessment of participants' abilities, skills, and interests conducted to select participants into the grant program? What assessment tools and processes used? Who conducted the assessment? How were the assessment results used? Were the assessment results useful in determining the appropriate program and course sequence for participants? Was career guidance provided, and if so, through what methods?
4. What contributions did each of the partners (employers, workforce system, other training providers and educators, philanthropic organizations, and others as applicable) make in terms of: 1) program design, 2) curriculum development, 3) recruitment, 4) training, 5) placement, 6) program management, 7) leveraging of resources, and 8) commitment to program sustainability? What factors contributed to partners' involvement or lack of involvement in the program? Which contributions from partners were most critical to the success of the grant program? Which contributions from partners had less of an impact?

Evaluators will gather data to answer the following two additional research questions pertaining to the implementation of the program.

1. To what extent did each of the program's interventions produce the desired result?
2. In what ways did the implementation of the grant enhance institutional capacity?

IV.B. Implementation Analysis Data Strategies

Data to address the research questions will be collected through online surveys, onsite interviews, and focus groups with program leaders, partners, instructors, and students. Rubrics will be constructed and utilized to examine program deliverables and documentation. Coding and categorization techniques will be used to uncover salient themes in the data. Evaluators will provide data and feedback to program leaders on a quarterly basis for assessing progress and for considering potential adjustments to program activities.

The following matrix reflects the research questions identified for the implementation analysis, the data sources to be considered in answering the questions, and the process and timelines proposed for the data collection and analysis.

Research Questions	Data Sources	Data Collection, Timelines, and Analysis
1. How was the particular curriculum for the following programs selected, used, and/or created? • Robotics/Electronic Systems Technology • Precision Machining • Welding • Energy/Plant Operations • High Performance Engine Machining	Program leaders, partners, and instructors, as appropriate Advanced Manufacturing Course and Program Documentation	Key program leaders, partner representatives, and Advanced Manufacturing (AM) instructors will be interviewed or surveyed using an instrument with the specified research questions. This data collection will take place during January – March 2016 to identify baseline information about each of the five AM programs. In addition, program documentation, as appropriate, will be reviewed for relevant data. Interview/survey data as well as data from the documentation will be compiled. Observations including patterns and themes will be noted and reported to program leaders for their consideration about program adjustments.
2. How were programs and program designs improved or expanded using grant funds? What delivery methods were offered? What was the program administrative structure? What support services and other services were offered?	Program leaders, partners, and instructors, as appropriate Advanced Manufacturing Course and Program Documentation Relevant	Key program leaders, partner representatives, and selected instructors will be interviewed or surveyed using an instrument with the specified research questions. This data collection will take place during January – March 2016 to identify baseline information about each of the five AM programs and again in the Fall of

	Deliverables	2016 and 2017 to document changes and progress. In addition, program documentation and deliverables, as appropriate, will be reviewed for relevant data. Interview/survey data as well as data from the documentation/deliverables will be compiled. Observations including patterns and themes will be noted and reported to program leaders for their consideration about program adjustments.
3. Was an in-depth assessment of participants' abilities, skills, and interests conducted to select participants into the grant program? What assessment tools and processes used? Who conducted the assessment? How were the assessment results used? Were the assessment results useful in determining the appropriate program and course sequence for participants? Was career guidance provided, and if so, through what methods?	Program leaders, partners, and instructors, as appropriate Advanced Manufacturing Program Documentation Relevant Deliverables	Key program leaders, partner representatives, and selected instructors will be interviewed or surveyed using an instrument with the specified research questions. This data collection will take place during January – March 2016 to identify baseline information about each of the five AM programs and again in the Fall of 2016 and 2017 to document changes and progress. In addition, program documentation and deliverables, as appropriate, will be reviewed for relevant data. Interview/survey data as well as data from the documentation/deliverables will be compiled. Observations including patterns and themes will be noted and reported to program leaders for their

		consideration about program adjustments.
4. What contributions did each of the partners (employers, workforce system, other training providers and educators, philanthropic organizations, and others as applicable) make in terms of: 1) program design, 2) curriculum development, 3) recruitment, 4) training, 5) placement, 6) program management, 7) leveraging of resources, and 8) commitment to program sustainability? What factors contributed to partners' involvement or lack of involvement in the program? Which contributions from partners were most critical to the success of the grant program? Which contributions from partners had less of an impact?	Program leaders, partners, and instructors, as appropriate Advanced Manufacturing Advisory Councils Advanced Manufacturing Program Documentation Relevant Deliverables	Key program leaders, partner representatives, selected instructors, and Advisory Council members will be interviewed or surveyed using an instrument with the specified research questions. This data collection will take place in the Spring of 2016 and 2017 to gather evidence about the contributions of various partners to each of the five AM programs. In addition, program documentation and related deliverables will be reviewed for relevant data. Interview/survey data as well as data from the documentation/deliverables will be compiled. Observations including patterns and themes will be noted and reported to program leaders for their consideration about program adjustments.
5. To what extent did the following program interventions produce the desired result? • Marketing Assistant and Campaign • Grow Your Own Business Model • Career Pathways Model • Continuous Improvement Publication • Virtualization/Simulation in AM coursework • Improved Technology Infrastructure • Round 1 Student Success	Marketing Assistant AM Advisory Councils AM Students Identified AM Content Experts AM Program	Online surveys, interviews, and focus groups will be used to collect data during the spring of 2016 and 2017 about the impact of these interventions. Common messages and/or suggestions for improvement gleaned from the interviews will be communicated to the project leaders. Rubrics will be created to examine the related deliverables.

Kit • TED Model	Instructors Career Pathways Coordinator Continuous Improvement Coordinator	
6. In what ways did the implementation of the grant enhance institutional capacity?	Program Leaders Marketing Assistant Continuous Improvement Coordinator Career Pathways Coordinator AM Program Instructors	Interviews will be conducted in the spring of 2016 and 2017 to assess growth in institutional capacity as determined by the following indicators: • additional online programs • permanent hires • upgraded technology and equipment • new partnerships with employers and other institutions • expanded student services • upgraded facilities

V. Outcomes/Impact Analysis Design

Accreditation standards for each the Advanced Manufacturing programs involved in the program require consistency and fidelity of curriculum, thereby preventing the use of a true experimental design. Given the small sample sizes in the Advanced Manufacturing programs and the remote, rural demographics, evaluators do not plan to use a quasi-experimental design

involving comparison groups. Regional differences in the manufacturing industry within South Dakota, and the corresponding regional differences in curriculum, hinder efforts to establish valid comparison groups with the state's three other technical institutes. The TEAM program is well underway, currently operating in its fifteenth month, which also creates challenges in establishing comparable cohorts of students.

An outcomes-only analysis will be used to determine program effectiveness. Progress toward each targeted outcome measure will be documented and analyzed using descriptive statistics. Summative observations about the program will be documented and reported to program leaders and the funder, as appropriate. In addition, an analysis of Advanced Manufacturing program enrollment numbers, completer numbers, and time to completion will compare data from a historical cohort of students from the three years prior to the grant to data from the students enrolled during the three years of the grant period. Comparing these *aggregated* enrollment numbers, completion rates, and time to completion rates between the historical AM cohort and the current AM cohort will assist evaluators in benchmarking the effectiveness of the program.

V.A. Outcomes/Impact Analysis Research Questions

The quantitative answers to the following three questions are of significant value to TEAM leaders and the funder for making informed judgments about the success of the program.

1) To what extent did each outcome measure reach its targeted goal?

2) How did the *aggregate* performance of the grant participants compare to previous AM students in terms of enrollment, program completion, and time-to-completion?
3) Which of the outcome measures displayed the most growth over the duration of the grant period? Which displayed the least growth?

V.B Outcomes Analysis

Evaluators hypothesize that the program's interventions will collectively result in attaining the targeted goal for each outcome measure. Pre and post analysis of selected outcome measures will aid in determining varying levels of participant success. Wage data will be examined for post-program increases and for the level of increase. A Data Collection System which was created in the TAACCCT Round 1 grant effort will be used to track and report information on all outcome measures. The Data Management System collects student data from Jenzebar, the student management system used at LATI. The data which is collected includes demographic information including TAA eligibility, enrollment dates, credits and diplomas earned, employment status, and wage information. Employment and wage information is attained through an agreement with the South Dakota Department of Labor and Regulation.

Listed below is a section of the annual report submitted to DOL by the South Dakota TEAM program in November 2015. Each outcome measure for Year 1 is shown, along with the targeted goal for the entire project period. Evaluators will

use this format to track progress on the outcome measures and offer observations about program success.

Participant Outcomes	Year 1 Actual	Year 2 Actual	Year 3 Actual	Total Target
1. Unique Participants Served/Enrollees	291			508
2. Total Number of Participants Who Have Completed a Grant-Funded Programs of Study	73			209
2a. Total Number of Grant-Funded Program of Study Completers Who Are Incumbent Workers	26			
3. Total Number Still Retained in Their Programs of Study (or Other Grant-Funded Programs)	191			487
4. Total Number Retained in Other Education Program(s)	1			
5. Total Number of Credit Hours Completed (aggregate across all enrollees)	4336			
5a. Total Number of Students Completing Credit Hours	163			463
6. Total Number of Earned Credentials (aggregate across all enrollees)	82			225
6a. Total Number of Students Earning Certificates - Less Than One Year (aggregate across all enrollees)	41			
6b. Total Number of Students Earning Certificates - More Than One Year (aggregate across all enrollees)	0			
6c. Total Number of Students Earning Degrees (aggregate across all enrollees)	41			
7. Total Number Pursuing Further Education After Program of Study Completion	26			55
8. Total Number Employed After Program of Study Completion	7			71
9. Total Number Retained in Employment After Program of Study Completion	0			48
10. Total Number of Those Employed at Enrollment Who Receive a Wage Increase	36			265

V.C. Experimental Design

Not applicable.

V.D. Non-Experimental Design

Not applicable.

V.E. Outcomes/Impact Data Collection and Analysis

The following matrix reflects the outcome measures specified for the outcomes analysis, the data sources to be examined, and the process and timelines proposed for data collection and analysis.

Outcome Measures	Data Sources	Data Collection, Timelines, and Analysis
1. **Total Unique Participants Served:** *Cumulative total number of individuals entering any of the grant-funded programs offered?* **Goal for Project Period:** 508 2. **Total Number of Participants Completing a TAACCCT-Funded Program of Study:** *Number of unique participants having earned all of the credit hours (formal award units) needed for the award of a degree or certificate in any grant-funded program.* **Goal for Project Period**: 209	Documents such as program registrations, student records during program participation, and program completion records will be reviewed. Documents to collect the employment status of program completers will be developed, implemented, and reviewed. Data Management System for tracking TAACCCT Grant Participants developed in Round 1. Student	Advanced Manufacturing program enrollment, completion, and time to completion information during the 2011-12, 2012-13, and 2013-14 school years will be collected as baseline information during January – March 2016. The same information will be compiled for each of the three school years of the grant period. Evaluators will rely on the grant manager to supply pertinent data on each of the nine outcome measures. The grant manager will utilize the Data Management Systems for tracking TAACCCT Grant Participants to provide updated information to

3. **Total Number of Participants Still Retained in Their Program of Study or Other TAACCCT-Funded Program:** *Number of unique participants enrolled who did not complete and are still enrolled in a grant-funded program of study.* **Goal for Project Period:** 487 *4.* **Total Number of Participants Completing Credit Hours:** *Total number of student enrolled that have completed any number of credit hours to date.* **Goal for Project Period:** 463 *5.* **Total Number of Participants Earning Credentials:** *Total number of participants completing degrees and certificates in grant-funded programs of study.* **Goal for Project Period:** 225 *6.* **Total Number of Participants Enrolled in Further Education After TAACCCT-Funded Program of Study Completion:** *Total number of students who complete a*	questionnaire about pre-program employment. Wage information provided through an agreement with the South Dakota Department of Labor and Regulation (DLR).	the evaluators in the summers of 2016 and 17. Evaluators will integrate the quantitative data about the nine outcome measures with the qualitative data derived from the implementation analysis to make observations about the overall effectiveness of the program. This summative analysis will take place in the Summer of 2018. Pre and post program employment information will be analyzed in the Fall of 2017 and 2018 to determine the degree to which program interventions resulted in stable employment and wages commensurate with educational background.

grant-funded program of study and enter another program of study. **Goal for Project Period***:* 55 *7.* **Total Number of Participants Employed After the TAACCCT-Funded Program of Student Completion:** *Total number of students (non-incumbered workers only) who completed a grant-funded program of study entering employment in the quarter after the quarter of program exit.* **Goal for Project Period:** 71 *8.* **Total Number of Participants Retained in Employment After Program of Study:** *Total number of students (non-incumbent workers only) who completed a grant-funded program of study and who entered employment in the quarter after the quarter of program exit who retain employment in the second and third quarters after program exit.* **Goal for Project Period:** 48 *9.* **Total Number of Those Participants**		

Employed at Enrollment Who Received A Wage Increase Post-Enrollment: *Total number of students who are incumbent workers and who are enrolled in a grant-funded program of study who received an increase in wages after enrollment.* **Goal for Project Period:** 265		

VI. Limitations

One challenge to the implementation analysis includes a delayed start to the evaluation activities as the program began more than a year ago. For example, evaluators will collect baseline information and data during January – March 2016 and will be asking interviewees to recall their perceptions of the program's beginning phase in the fall of 2014, which will be problematic for some. Another limitation is the six-month processing time with the collection of wage data from the SD Department of Labor and Regulation.

VII. Reports

Data will be provided to the grant manager on a periodic basis for use with the advisory committees for each of the programs involved in the program. Evaluators will participate in quarterly meetings with the program's oversight committee and offer databased observations, as appropriate, for the consideration of program leaders. Annual reports will be submitted to the grant manager in September 2016 and September 2017. Evaluators will integrate the

implementation analysis and the outcomes analysis to determine findings. This synthesis will then be used as a lens to examine the degree to which each of the three goals of the program was attained. Conclusions about the overall effectiveness of the grant program will be communicated in a final evaluation performance report to program leaders and the grant funder in September 2018.

VIII. Reference List

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Sample Interview Questions - SD Team Winter 2017 Interviews – Appendix B
Lake Area Technical Institute – TAACCCT Grant Round 4
Leadership Interview – **Project Manager**

Purpose: The purpose of this interview is to collect data about the implementation of the SD TEAM grant since the initial interviews in January of 2016. The interview questions will be based on project goals and required research questions.

Background:

1. Any changes to your job description or your role?

2. Please describe the progress made on the implementation goals in the past year.
    a. Reimaging the Advanced Manufacturing job related fields:
    b. Pipeline development:
    c. Improving employer relationships and industry involvement.

3. Have there been changes to the positions that are being fully or partially funded using grant dollars?

Partners:

4. You identified the TEAM Project partners as the businesses that submitted a letter of support for the project proposal. They are as follows:
    a. CNC Motor Sports (High Performance Engine Machining)
    b. Daktronics (Electronics/Robotics)
    c. Otter Tail (Energy Operations)
    d. Worthington Industries (Welding)
    e. Department of Labor
    f. Department of Education
    g. Economic Development Corporations in Aberdeen, Watertown, and Brookings)
    h. Industry Focus Group Meetings in Aberdeen, Watertown, Brookings and Milbank

How have the partners contributed to the SD TEAM effort in the following ways? Please provide examples:

1. Assist with curriculum development and program design.
2. Actively engage in local manufacturing program advisory council discussions to enhance program strategies.
3. Continue to collaborate with LATI in the identification of necessary skills and competencies for students in advanced manufacturing programs.
4. Participate in the identification of the skills and competencies needed by student enrolled at LATI.
5. To the extent possible, provide resources to support education/training (such as equipment, facilities, instructors, funding, internships, apprenticeships, and other work-based training opportunities.
6. Continue to hire, promote and/or retain qualified program participants of advanced manufacturing programs as positions become available.

What contributions did each of the partners make in terms of: (How could we get specific information related to partner contributions? (i.e., who helped with recruitment and in what way? Please provide examples)

1. Program design
2. Curriculum development
3. Recruitment
4. Training
5. Placement
6. Program management
7. Leveraging of resources
8. Commitment to program sustainability

During the initial interview, you shared that the image and marketing of Advanced Manufacturing needs to be industry driven. Has there been progress in having industry take the lead?

What factors contribute to partners' involvement of lack of involvement in the program?

Which contributions from partners were most critical to the success of the grant program? How do you know?

Which contributions from partners had less of an impact? How do you know?

How have industry relationships been expanded and enhanced?

Administrative Structure

Have there been any changes to the program administrative structures?

Have there been any additional enhancements to instructional and/or institutional capacity since last January?

1. Additional online programs?
2. Permanent hires?
3. Upgrades in technology and equipment?
4. New partnerships with employers and other institutions?
5. Expanded student services?
6. Upgraded facilities?

Curriculum:

1. How has the curriculum been revised or tweaked since the onset of the grant activities? How were the AM programs and/or program design expanded or improved upon using grant funds? Updates?
2. What role, if any, did project partners play in the revision processes? Can you provide specific examples?
3. How have Round 1, 2, and/or 3 OER resources been leveraged? Anything new? Examples?
4. How is online tutoring being implemented? Had not worked on this last time. Any progress?

5. How is a personalized education experience being implemented for students? Anything new to add?
6. Explain how competency-based education models (including performance based assessments and internship opportunities) are being implemented. Just beginning work last time. What progress has been made?
7. What processes are in place to "take the lab to the students" using community and employer facilities? Updates?
8. How were the AM programs and/or program designs expanded or improved upon using grant funds? Anything new to add?

Interventions:

1. To what extent did the following program interventions produce the desired results?
    a. Marketing campaign? (Create a marketing campaign utilizing a variety of formats to address employer workforce needs and enhance the AM image; market to diverse populations including first generation college students, Native American, Hispanic, women, and the under-employed) - Anything new to add?
    b. Grow Your Own Business Model?
    c. Career Pathways Models
    d. Continuous Improvement Publication -
    e. Virtualization/Simulation in AM coursework – last time said more will be accomplished in summer of 2016. Anything to add.
    f. Improved Technology Infrastructure
    g. Round 1 Student Success Toolkit - Talk with Michelle for online student success strategies.
    h. TED Model (Expanded in what ways?) - Speak to Jacquie about this
2. What support services or other services were offered? (Last time you said that LATI was working on additional articulations so that students who get a two-year robotics degree at LATI could transfer to SDSU or another college for a four year degree. Has there been progress in that work? Additional articulation agreements? Also, last time you shared that you wanted to work on return on investment models….any progress?
3. Was an in-depth assessment of participants' abilities, skills, and interests conducted to select participants into the grant program?
    a. What assessment tools and process were used?
    b. Who conducted the assessments?
    c. How were the assessment results used?
    d. Were the assessment results useful in determining the appropriate program and course sequence for participants?
4. Was career guidance provided? If so, through what method?

Technology Infrastructure:

1. How has the technology infrastructure support for education programs provided by the grant been improved using grant funds? (Any updates?)

Other:

1. What other information would you like to share about the program?
2. What other kinds of information would you like to see collected about the program?
3. What are the primary success of the work to date? What challenges remain?

LATI Focus Group – Appendix C

Friday, April 6th

Face-to-Face Electronics/Robotics Students

11:00 – 1:00

Room 433

and

Saturday, April 7th

Online Electronics/Robotics Students

10:00 – 12:00

Room 433

Outline:

Welcome and Introductions

Background

Ground Rules

Opening Question

Questions:

1. Opening Question: Please tell us who you are and how you became interested in the Electronics/Robotics Program.

2. We would like to focus on strengths of the face-to-face program first. On the index card, please write down two strengths of the program. (Record and debrief the data)

- What patterns do you see?
- Since these two strengths seem to be the most important to the group, let's talk more about these. For those of you who identified _____ as a strength, could you tell me what you find positive about it?

3. Now let's talk about ways the program could be improved. (Same process as above)

4. Lake Area offers a variety of student services to ensure you are successful. (i.e. tutors, Education Services Center, Student Advisors etc.) Which of the student services have been the most helpful and why?

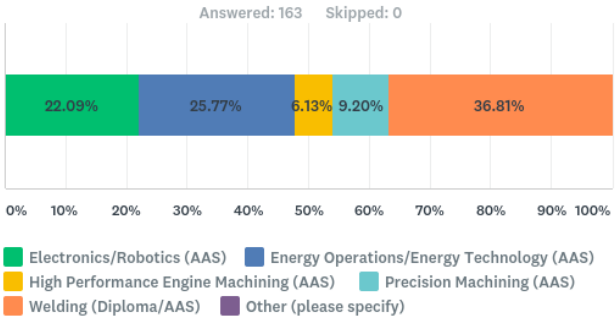
5. What advise would you offer the instructors and administrators at Lake Area?

6. Which of the issues we discussed today are most relevant and/or important to you.

7. Is there anything else you want to add?

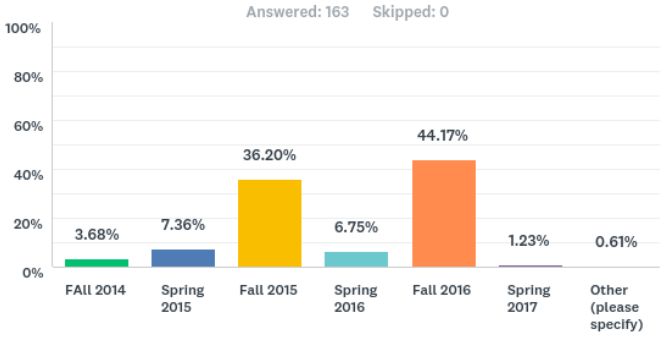
John, Summarize the information

Q1 In which program of study/courses are you currently enrolled?



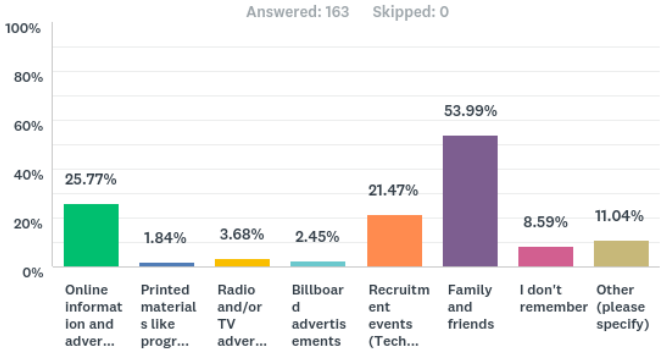
Welding is the largest department?

Q2 In which semester did you enroll in that program?



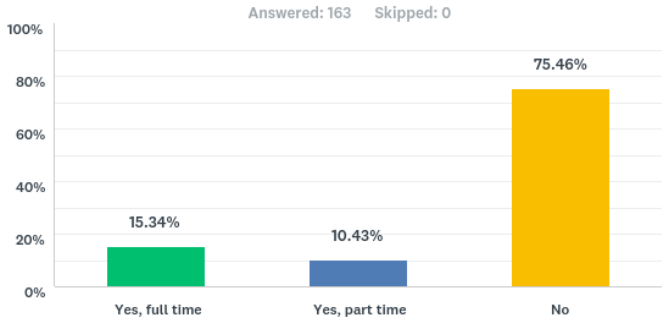
Fall is the busiest semester?

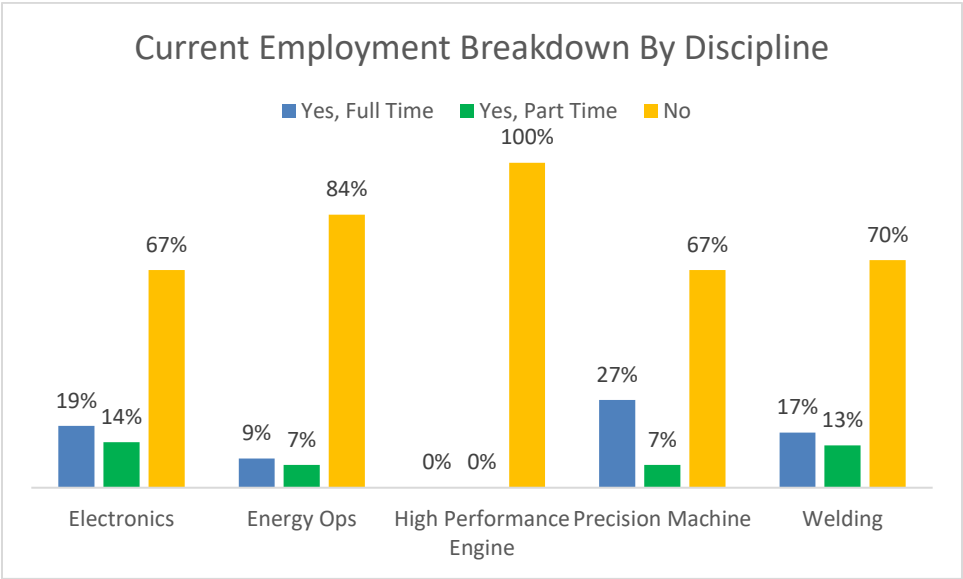
Q3 How did you hear about the program? Check all that apply.



How were friends and family exposed to the program offerings?

Q4 Are you currently employed in the Advanced Manufacturing field?





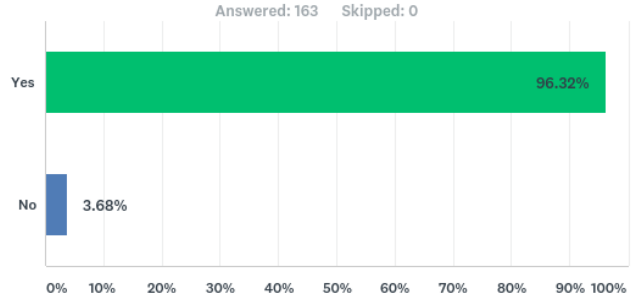
Highest percentage of participants not currently employed in the advanced manufacturing field. How would this data appear differently if we only asked Precision Machining students?

Q5 If you chose "Yes, full time" or Yes, part time" please provide the following information. If not, please skip to Question 6.

Answered: 37 Skipped: 126

Q6 Do you currently live in South Dakota?

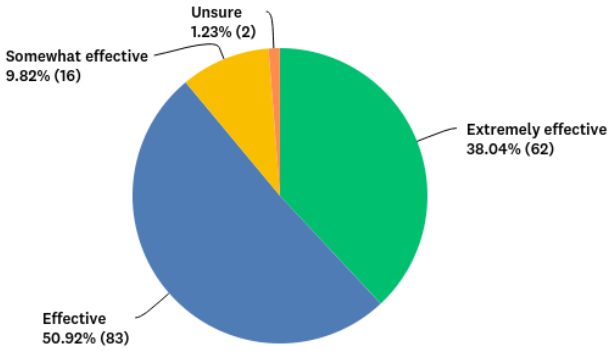
Answered: 163 Skipped: 0

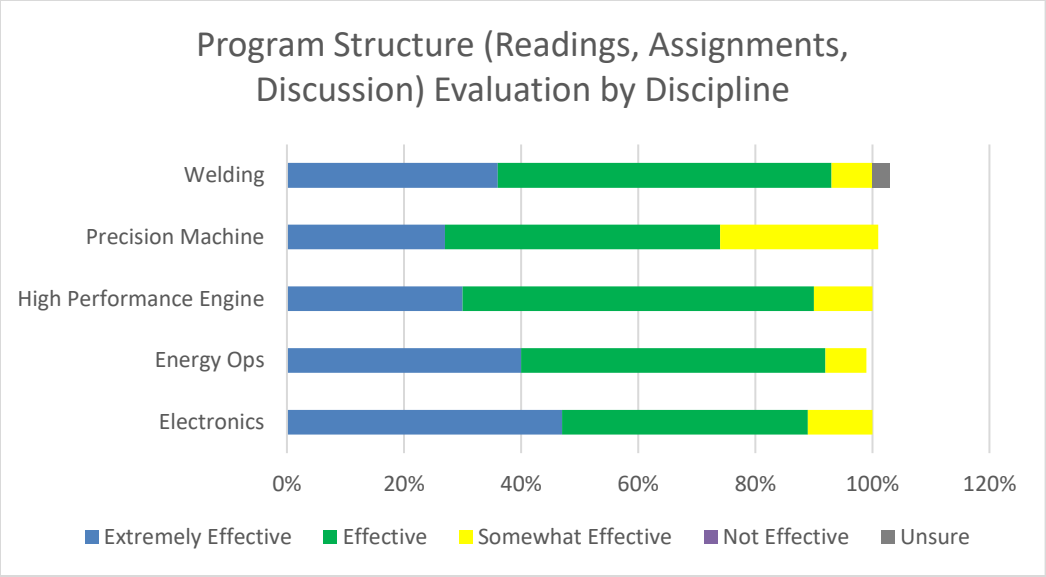


Vast majority of students live in the state.

Q7 Please evaluate the effectiveness of the program structure (weekly readings, assignments, discussions etc.).

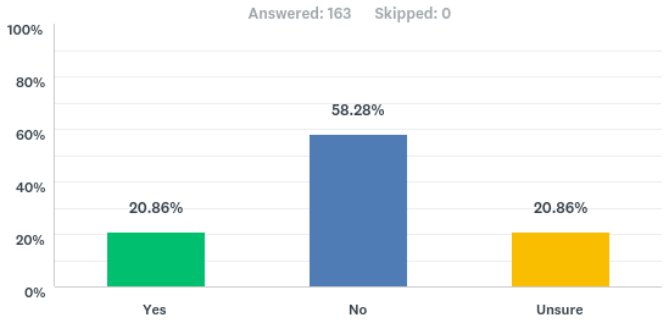
Answered: 163 Skipped: 0

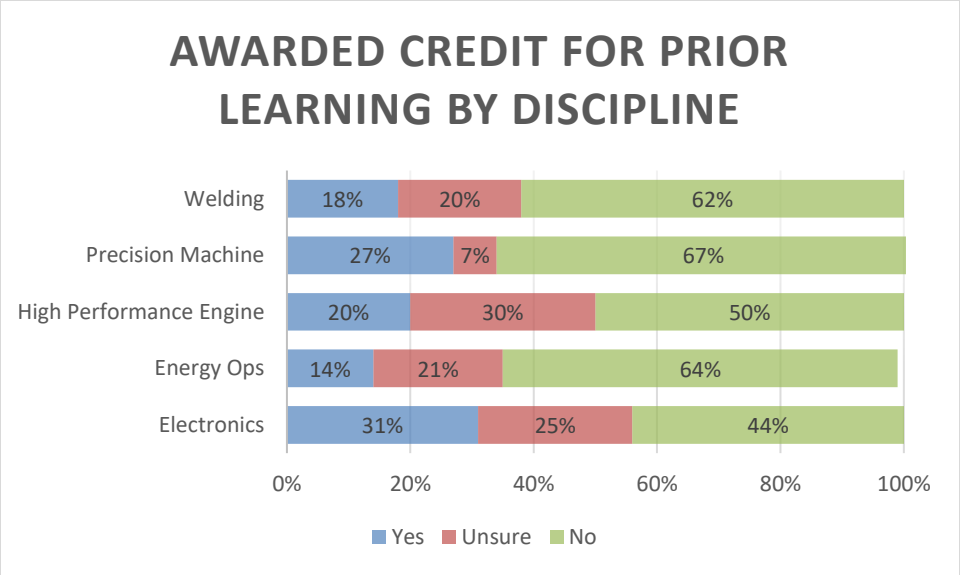




89% of respondents rated the program structure as either Extremely effective or Effective. How would this compare by group?

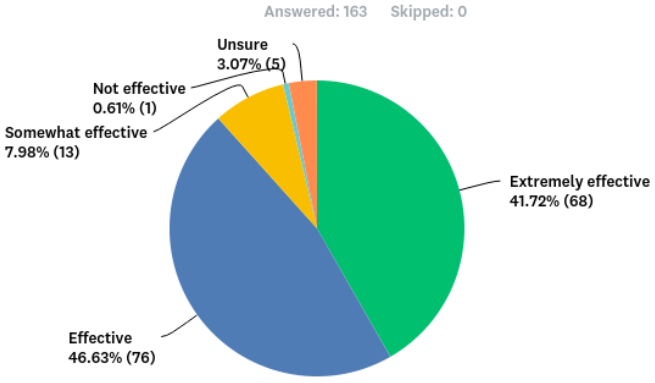
Q8 Were you awarded any academic credit in your program for prior learning experiences such as previous courses, certifications, or work experience?



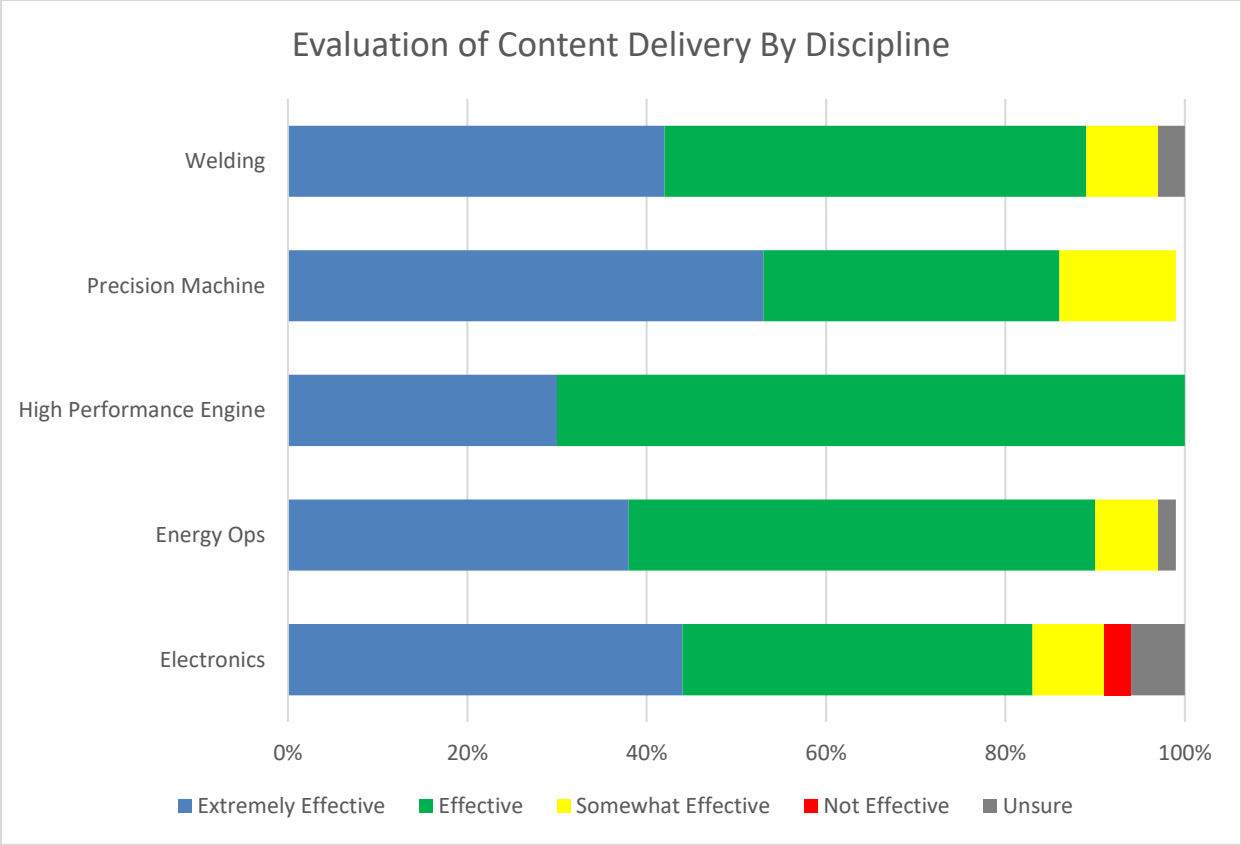


How would this change by field by semester? By group?

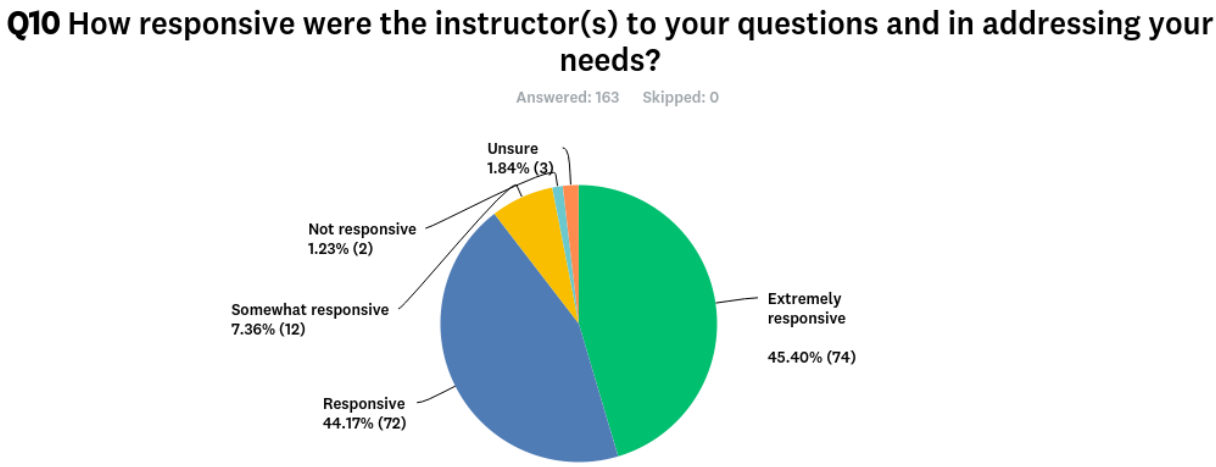
Q9 Please rate the effectiveness of the program instructors in managing the delivery of the content (lecture, demonstrations, projects, collaborative learning, etc.)



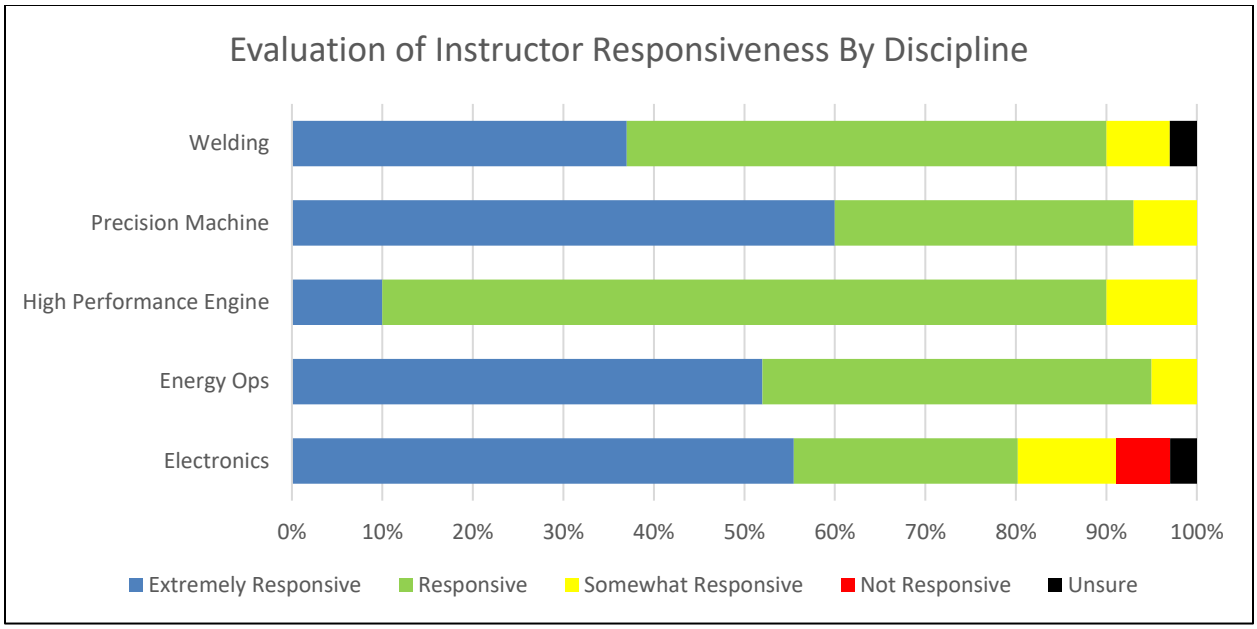
88% of respondents rated their Programs either Extremely Effective or Effective.



100% of HPE felt the content was either Extremely Effective or Effective. Electronics reported the highest level of Not Effective and Unsure. Tho this maybe a product of the low n size.

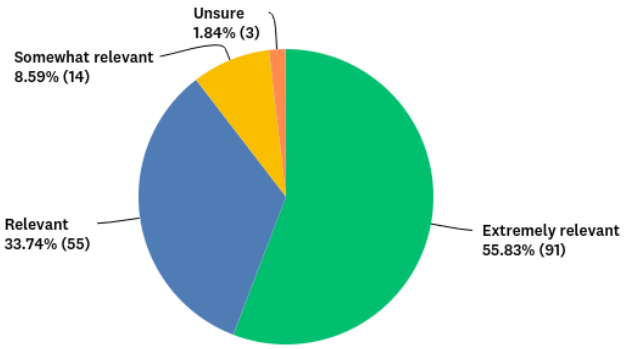


90% Reported either Extremely Responsive or Responsive in regards to instructor responsiveness.



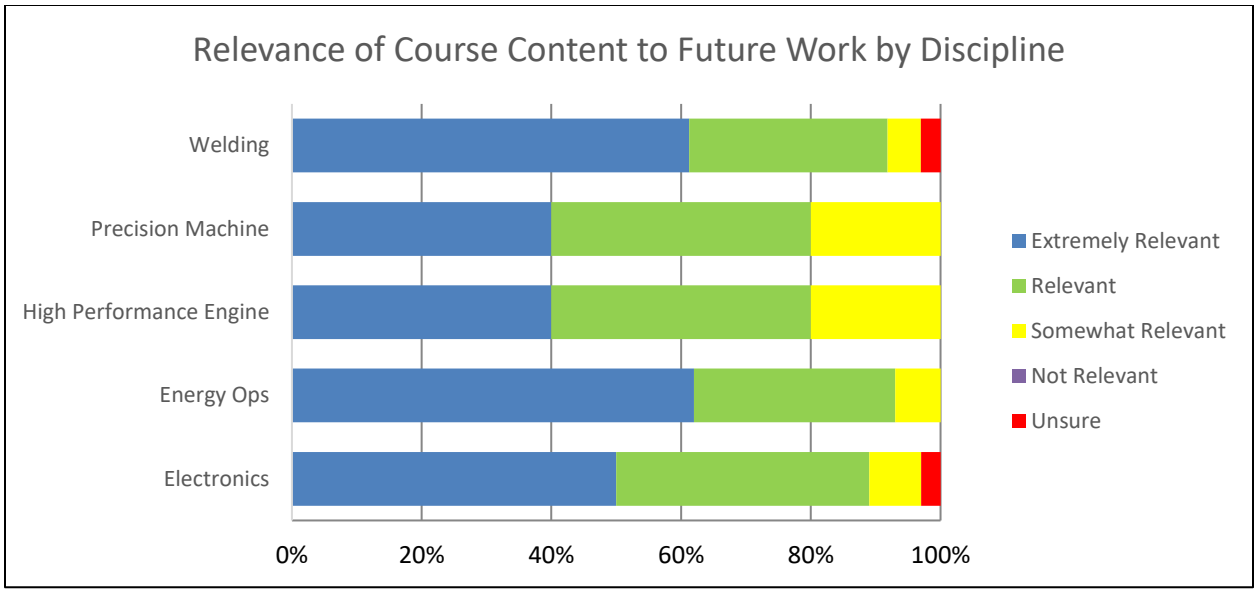
Q11 How RELEVANT is the program/course content to your current and/or future work?

Answered: 163 Skipped: 0

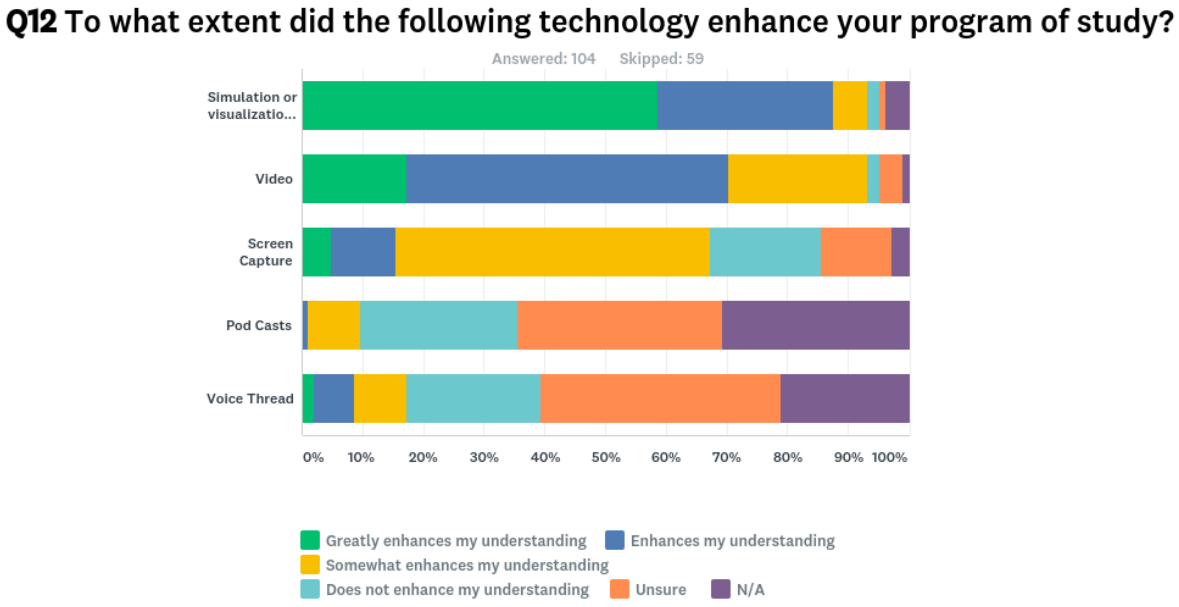


90% of all students report either Extreme Relevance or Relevance.

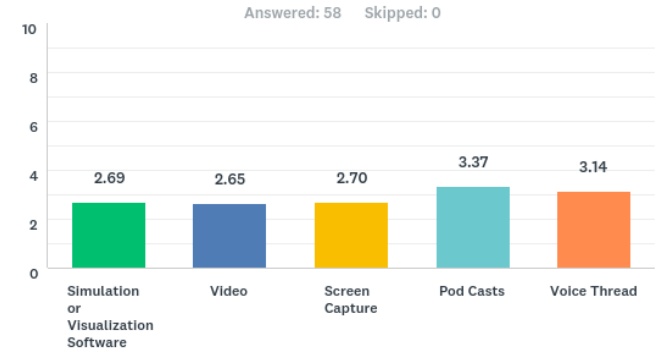
All students – Welding



Energy Ops has the highest reporting Content relevance by the two highest elements. No students reported 0 relevance.

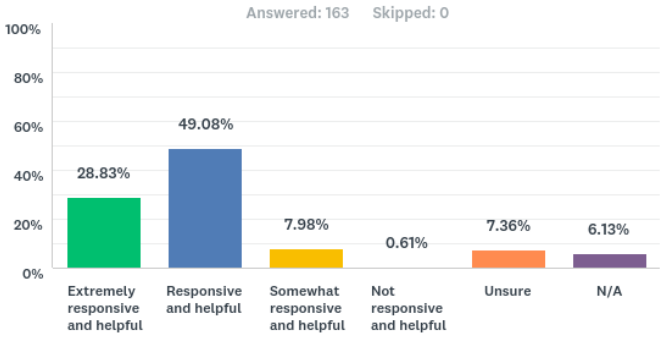


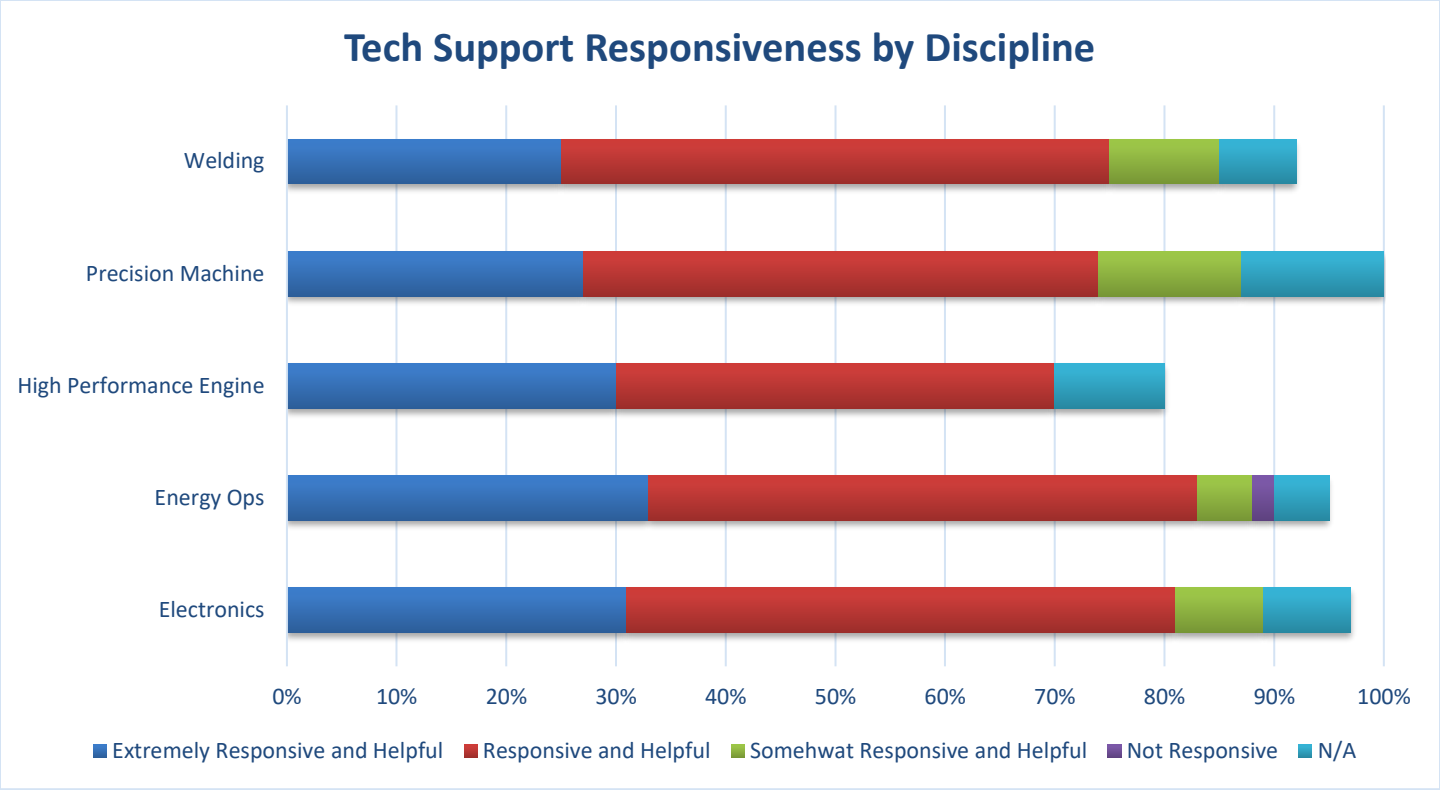
Q1 To what extent did the following technology enhance your program of study?



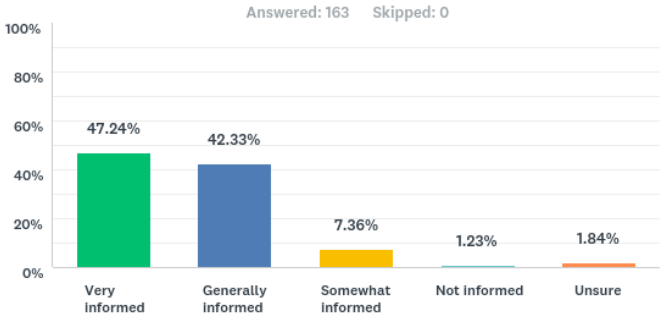
Simulation and or Visualization was the clear winner here in the realm of enhancing programs of study. Video came in second. Podcasts were the least effective at enhancing programs of study, followed by Voice Thread. NOT WELDERS.

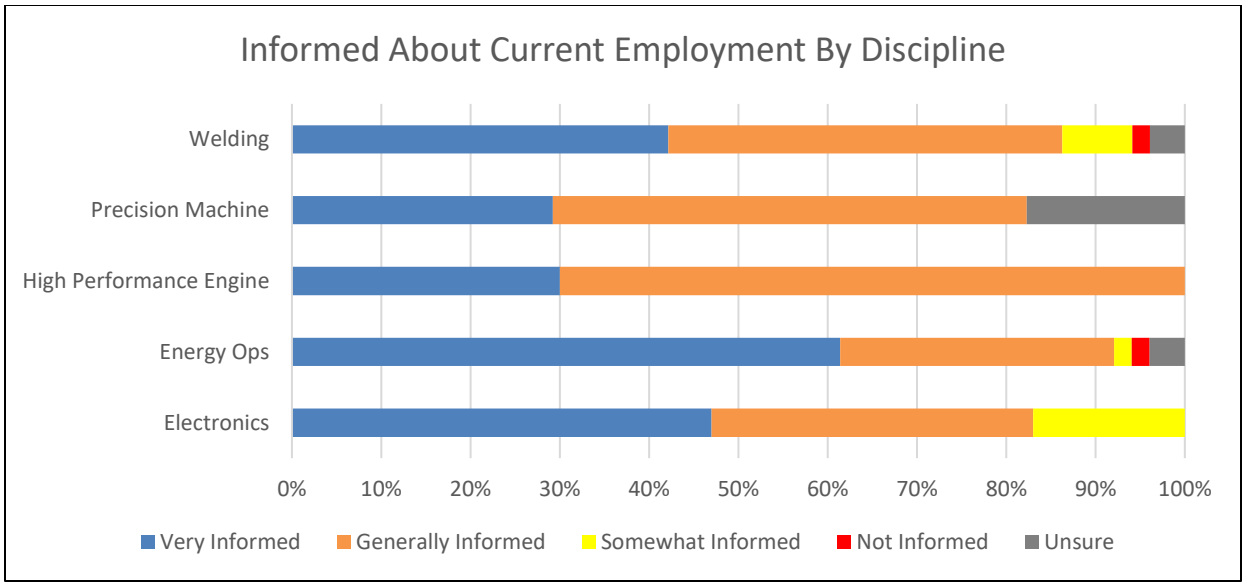
Q13 To what extent is the tech support at your school responsive and helpful?



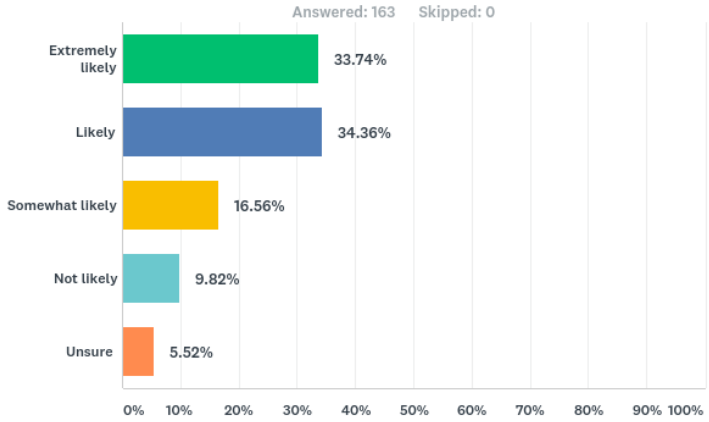


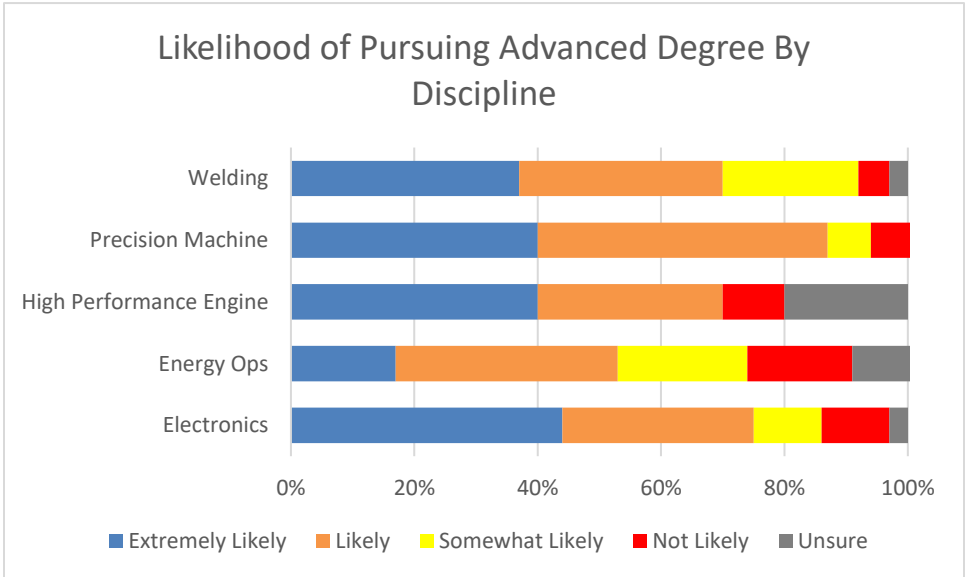
Q14 To what extent do you feel informed about the current employment outlook for your field?





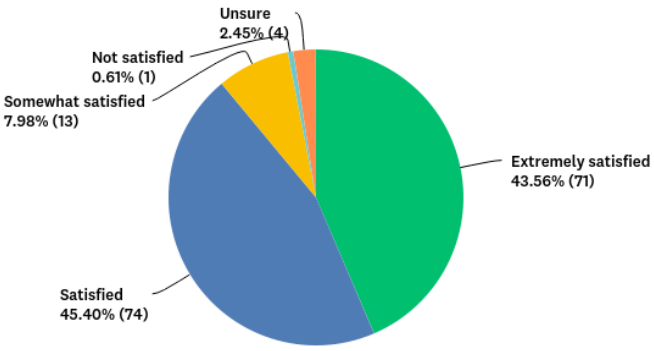
Q15 After you complete your program, how likely are you to continue learning in a related or advanced program within the field of advanced manufacturing?

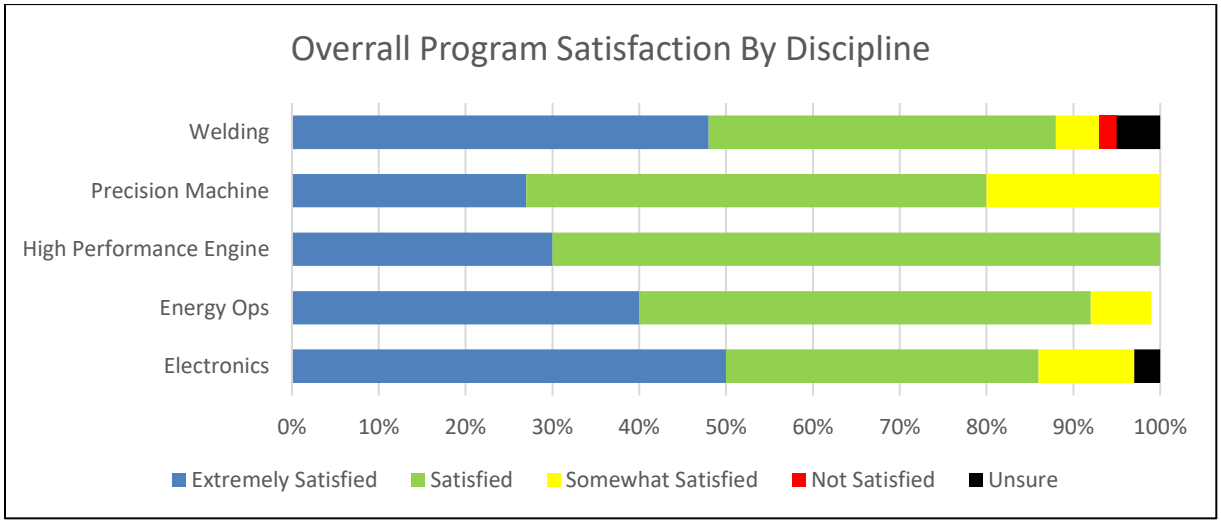




Q17 Overall, how satisfied are you with the quality of your experiences in the program?

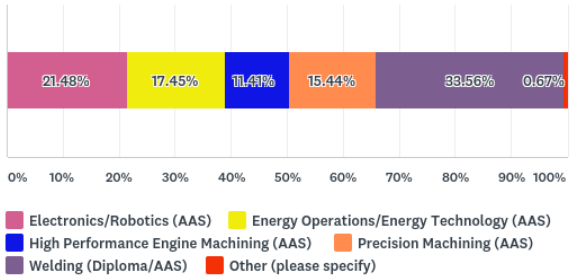
Answered: 163 Skipped: 0



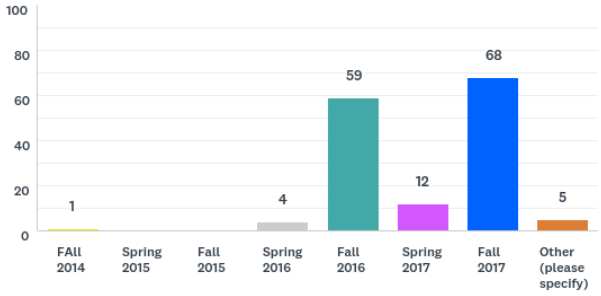


2018 South Dakota TEAM Student Survey - Appendix E

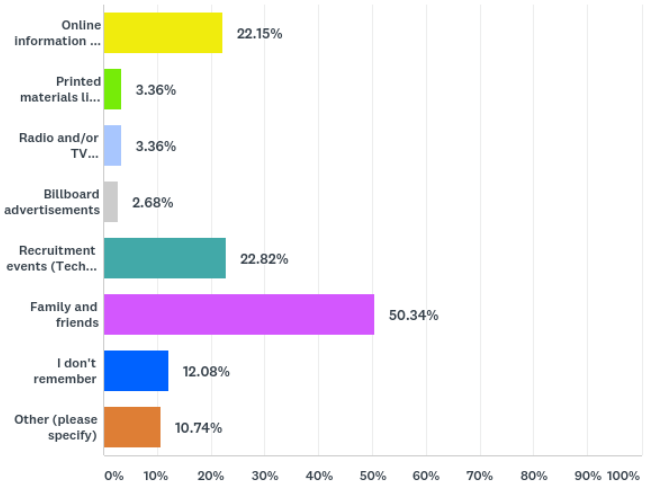
Q1 In which program of study/courses are you currently enrolled? (N=149)



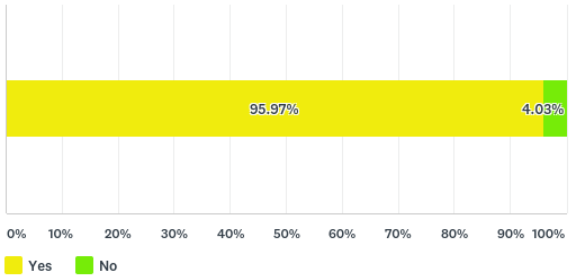
Q2 In which semester did you enroll in that program? (N=149)



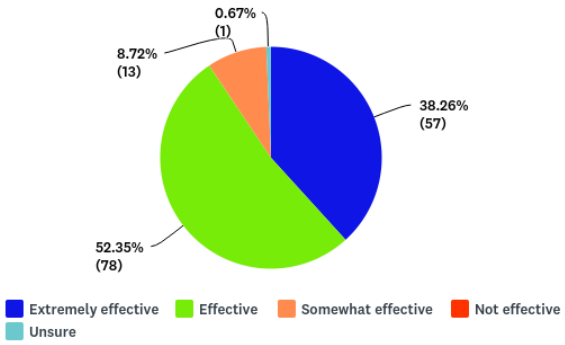
Q3 How did you hear about the program? Check all that apply. (N=149)



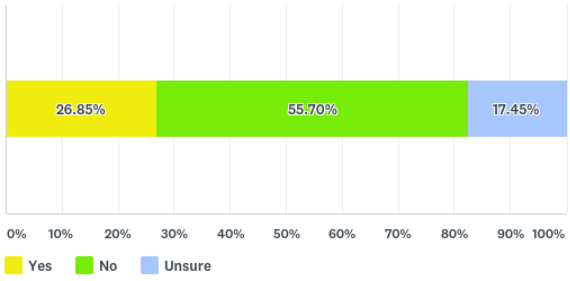
Q4 Do you currently live in South Dakota? (N=149)



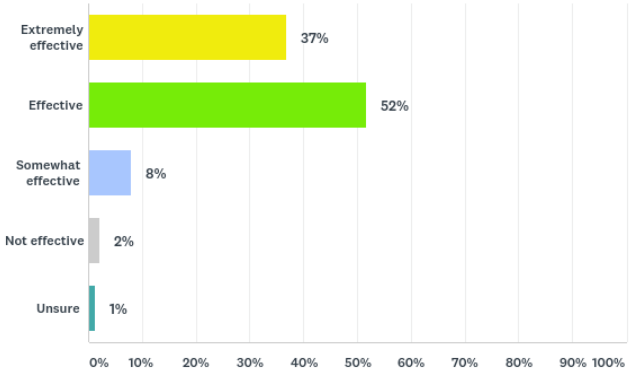
Q5 Please evaluate the effectiveness of the program structure (weekly readings, assignments, discussions etc.). (N=149)



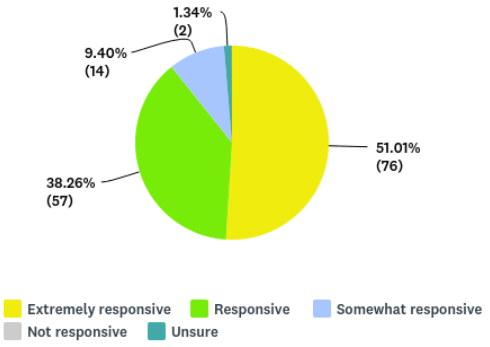
Q6 Were you awarded any academic credit in your program for prior learning experiences such as previous courses, certifications, or work experience? (N=149)



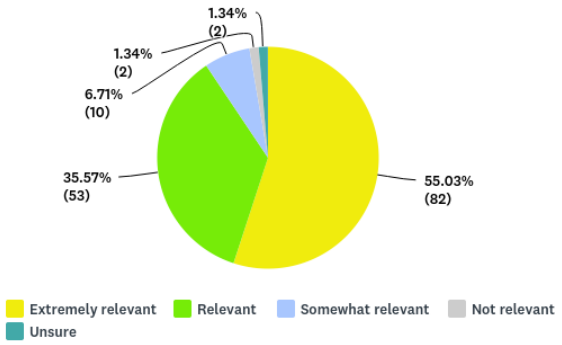
Q7 Please rate the effectiveness of the program instructors in managing the delivery of the content (lecture, demonstrations, projects, collaborative learning, etc.) N=149



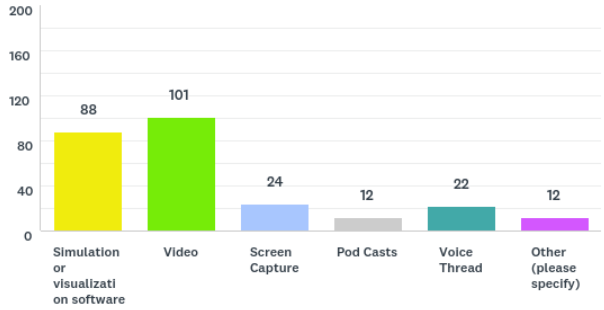
Q8 How responsive were the instructor(s) to your questions and in addressing your needs? (N=149)



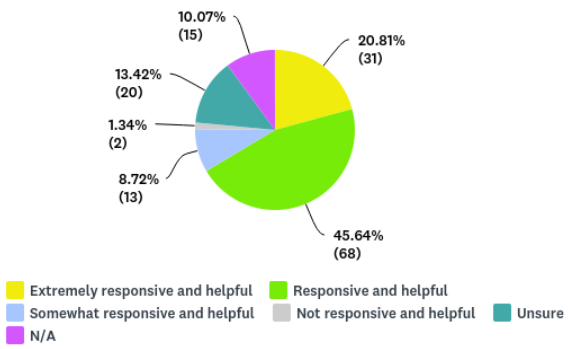
Q9 How RELEVANT is the program/course content to your current and/or future work? (N+149)



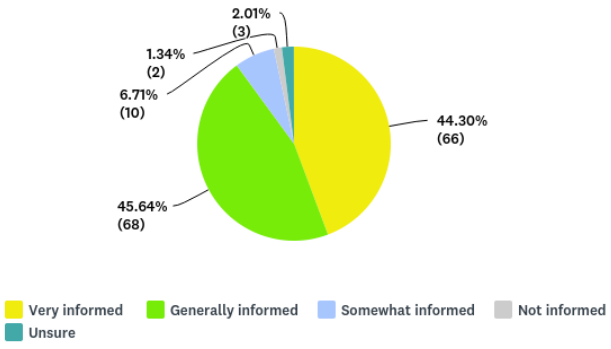
Q10 Which of the following technologies were used to enhanced your program of study? Check all that apply. (N=149)



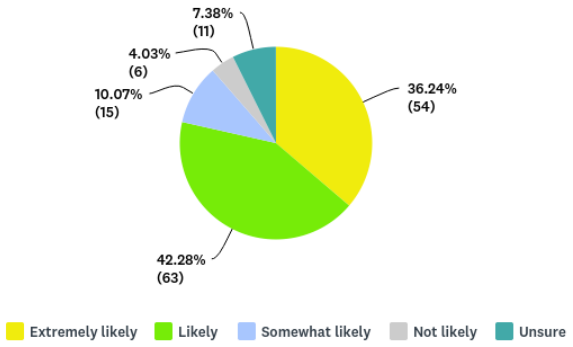
Q11 To what extent is the tech support at your school responsive and helpful? (N=149)



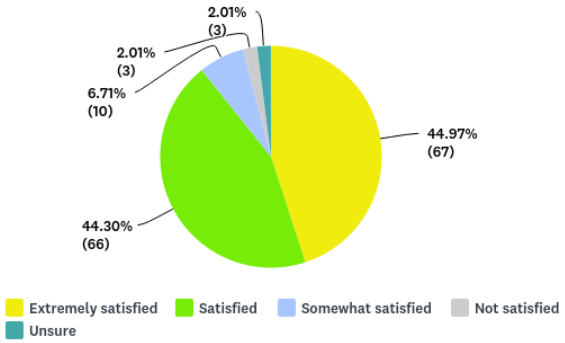
Q12 To what extent do you feel informed about the current employment outlook for your field? (N=149)



Q13 After you complete your program, how likely are you to continue learning in a related or advanced program within the field of advanced manufacturing? (N=149)



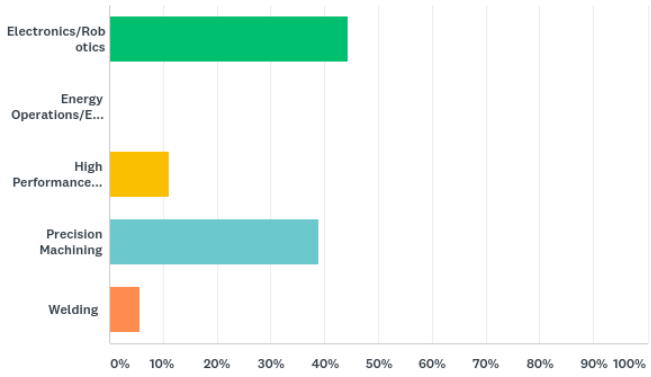
Q15 Overall, how satisfied are you with the quality of your experiences in the program? (N=149)



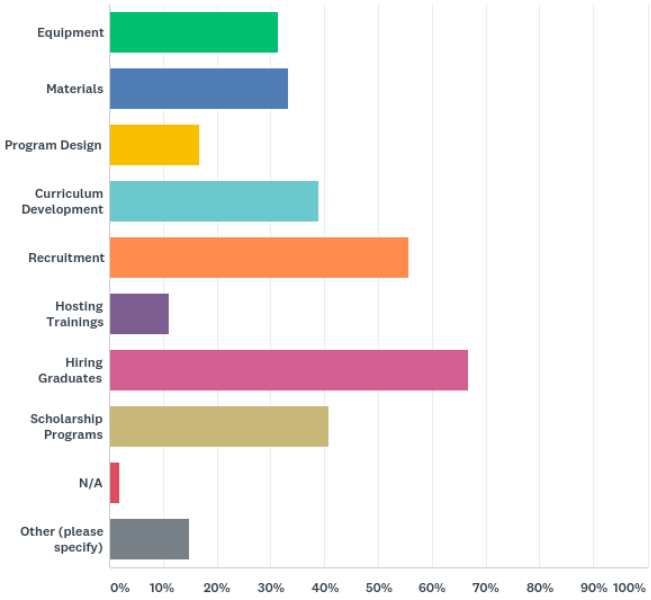
Appendix F

SD TEAM Advisory Board Survey Results

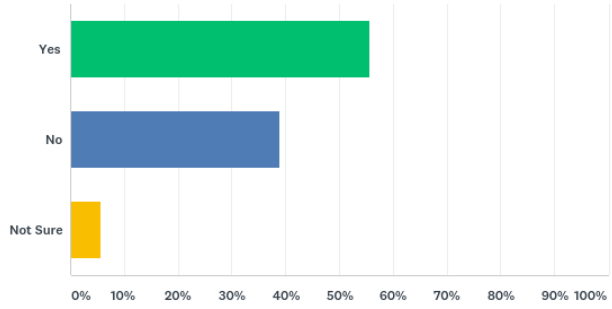
Q1 Please select the Advanced Manufacturing Program for which you serve as an advisory board member.



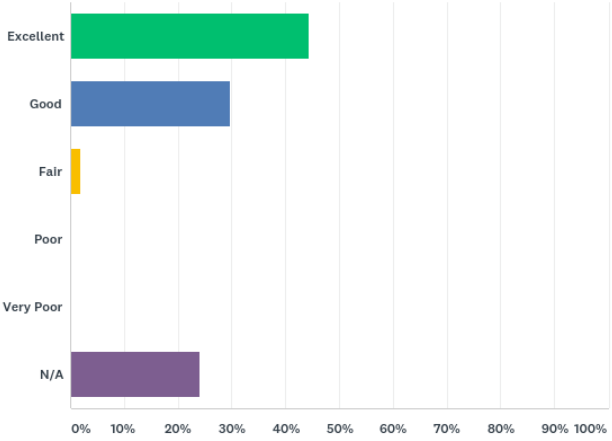
Q2 Please check all the ways you and/or your company have contributed/donated to the LATI Advanced Manufacturing Programs.



Q3 Has your company hired LATI graduates since May 0f 2015?



Q4 If your company has hired LATI graduates, how would you rate their general work performance?



Open-ended questions:

Q5. What kinds of things would help you participate more fully in advisory board meetings?

Q6. What factors, if any, limit your participation in advisory board meetings?

LATI Targeted Instructional Rubric - Appendix G Course

Interviewee Name: Instructor Date:

Interviewer: Instructional Designer

CATEGORY	NOVICE	BEGINNING PROFICIENCY	ADVANCED PROFICIENCY	EXEMPLARY
On-Line Curriculum 1,4,8	Much of the course is under construction, with a few key component identified.	Course is organized and navigable. Students can understand the key components and structure of the course.	Course is well-organized and easy to navigate. Students can clearly understand all components and structure of the course.	Course is well-organized and easy to navigate. Students can clearly understand all components and structure of the course. Additional materials related to successful strategies for completing online course are provided.
Instructional Resources 4,6	Course minimally uses digital content, resources and/or tools to supplement instruction.	Course uses adequate digital content, resources, and tools to supplement instruction.	Digital content, resources and tools expand and enhance the curriculum and content.	Use of digital resources and tools are integral to content, curriculum, and instruction.
Instructional Design 5,8	Course provides limited visual, textual, kinesthetic, and/or auditory activities to enhance student learning and accessibility.	Course provides adequate visual, textual, kinesthetic, and/or auditory activities to enhance student learning and accessibility.	Course provides ample visual, textual, kinesthetic, and/or auditory activities to enhance student learning and accessibility.	Course provides multiple visual, textual, kinesthetic, and/or auditory activities to enhance student learning and accessibility.
Individualization of Instruction *Based on Program*	All students expected to complete same instructional pathway.	Students are minimally engaged with digital content to customize their instructional pathway.	Students engage with digital content to customize their instructional pathways that are competency-based.	Students engage with digital content and have multiple pathways that are competency-based and not tied to a fixed school calendar.

Instructional Support Models 7	Direct student learning" through traditional teacher roles and staffing models.	Direct student learning through a blended model of traditional teacher roles and some reliance on technology-based tools and content.	Facilitate student learning: through a team approach with a significant reliance on technology-based tools and content.	Coordinate student learning: through the expanded use of technology-based tools and content, as well as the effective use of outside experts and/or community resources.
Technology Access 6	Students have no access to technology or digital coursework at their school.	Access to school's technology and digital coursework ends with class period.	Access to school's technology and digital coursework exists during school hours.	Access to school's technology and digital coursework is 24/7.
Technology Integration 5,6	Limited usage of new technology tools that enhance student learning.	Adequate usage of new technology tools that enhance student learning.	Regular usage of new technology tools that enhance student learning.	Innovative usage of new technology tools that interactively enhance student learning.
Teaching with Technology 5,6	There are limited multimedia elements and/or learning objects for accommodating different learning styles.	There are adequate multimedia elements and/or learning objects for accommodating different learning styles.	Multimedia elements and/or learning objects are used and are relevant to accommodate different learning styles.	Varieties of multimedia elements and/or learning objects are used and are relevant to accommodate different learning styles throughout the course.
Communication and Interaction 7	Opportunities for appropriate instructor-student interaction are infrequent and sporadic	Opportunities are created to foster instructor-students interaction.	Regular opportunities are created to foster timely and frequent instructor-students interaction.	Regular opportunities are created to foster timely and frequent instructor-students interaction as well as student-student interaction.
Student Feedback 3	Opportunities for students to receive feedback about their own performance are infrequent and sporadic.	Opportunities for students to receive feedback about their own performance are provided.	Regular feedback about student performance is provided in a timely manner throughout the course.	Ongoing, varied and frequent feedback about student performance is provided in a timely manner throughout the course.

Notes: