Trade Adjustment Assistance Community College and Career Training – Round 4

Transforming Education for Advanced Manufacturing in South Dakota (TEAM SD)

Lake Area Technical Institute

Winter Interviews Highlights and Themes

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Background

The TAACCCT third party evaluators conducted a series of TAACCCT participant interviews January - April, 2017. The purpose of these interviews was two-fold:

- To maintain and strengthen relationships with grant participants; and
- To collect implementation data around grant goals, objectives, deliverables, and evaluation research questions.

Winter Interview Process

The TAACCCT third party evaluation team developed and finalized the evaluation questions and the evaluation process with the Project Manager. The list of interviewees was adjusted to include new hires and others identified by the Project Manager as crucial to the successful implementation of the grant goals. Additionally, the evaluation team interviewed Graco employees and the student involved in the implementation of the "Grow Your Own" pilot program. The individual interviews were approximately one hour in length. All interviewees (with the exception of the Graco employees and student) were provided a copy of evaluator interview notes and given an opportunity to make corrections and/or to add additional comments. A complete list of interview participants is identified in Table 1 below. Questions were tailored for the specific participants and were edited with the input of the Project Manager.

Table1: Interviewees

Interviewee	Position
Project Leadership	
Terri Cordrey	Project Manager
Gina Grant	Instructional Designer
Jacquie Larson	Education Technology Specialist
Michelle Schrempp	Online Student Success Coach
Shane Swenson	Business Partner Specialist
Instructors	
Jim Buhler	Welding Technology Department Head/Instructor
Darrel Grohs	Precision Machining Department Head/Instructor
Brooks Jacobsen	Electronic Systems Technology/Robotics Department Head/Instructor
Scott Leitheiser	Energy Operations Department Head/Instructor
Mark Ramsey	Precision Machining Online Instructor
Steven Schwinger	Precision Machining Online Instructor
Troy Stuwe	High Performance Engine Machining Department Head/Instructor
Mathew Weinzirl	Electronic Systems Technology/Robotics Online Instructor
"Grow Your Own" Earn Participants	
Tammy Wierenga	Graco, Human Resources
James Starzl	Graco, Manufacturing Engineer/Mentor
Alec	Online Precision Machining Student

Interview Data Analysis

The information in the analysis represents an aggregate of the data obtained during the interviews with the grant participants identified in Table 1 of this report. The data was reviewed by the evaluation team to identify themes and patterns.

Interview Themes and Patterns

For the purpose of this report, project leadership includes interviewees not included in the instructor or the "Grow Your Own" participant groups. (Table 1) The evaluation team identified three overarching LATI project themes.

Innovation

"Grow Your Own" Pilot Project

During the2016 interview, the Business Partner Specialist felt a challenge remaining for him was to persuade business partners to become more involved in "pipeline development", encouraging students to pursue careers in Advanced Manufacturing. This year, that is happening with one business in Sioux Falls and plans are being made to expand this model to other businesses in Huron and Brookings.

Though conceptually the innovative idea of the "Grow Your Own" business model has been talked about for several years among the LATI leadership, it came to be through a "happy" accident and the vision of the new LATI Business Partner Specialist (hired in July 2016). An employee of Graco, a manufacturing company located in Sioux Falls, took advantage of the company's generous tuition reimbursement policy and registered for the online Precision Machining classes thinking he could complete the Associate's Degree without traveling to the LATI campus in Watertown. When the potential student discovered the expectation was for him to be on campus for labs, he approached his employers for help. This resulted in a Sioux Falls meeting with Graco leadership, the potential student, the LATI online instructors, and the LATI Business Partner Specialist. A plan was negotiated in which a Graco employee would act as a mentor for the student, guiding his lab work, assuring that he had access to the equipment he needed to complete the lab work, and being available to answer question. In May, the student was awarded a Precision Machining Certificate and is registered in the fall to complete an Associate's Degree in Precision Machining.

According to all parties involved, the process has not been flawless but each "struggle" was discussed and solutions brainstormed and implemented. Both LATI and Graco are interested in moving forward with year two and both are talking expansion. The LATI team was invited to Graco to lead an informational meeting for any interested employees. Seventeen employees attended the meeting and though only 1 demonstrated interest in registering in the fall, the leadership at Graco feels other employees may show interest in coming months. The LATI Business Partner Specialist is reaching out to other businesses in Brookings and Huron to share the success of this pilot project and explain the possibilities of the "Grow Your Own" business model. Discussions of expansion also include expanding the model to other LATI programs like Robotics or Welding.

During the interview, the Graco mentor was asked if the work related to the "Grow Your Own" model was what he expected. His reply summarizes the excitement surrounding this fledgling model, "**It ended up being a lot more in-depth and better than I expected**".

Performance-Based Assessment

Another innovation that is apparent at LATI is the extent of performance-based assessments and opportunities made available to LATI students. All students in the Advanced Manufacturing programs have to demonstrate they are skills proficient and work force 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.

These same students are encouraged to apply for the NASA National Community College Aerospace Scholars Project, a five week program which culminates with a four-day on-site event at a NASA flight research center. While on-site, students 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."**

Another example of innovation in student assessment is the High Performance Engine Machining students building engine power according to a set of specific rules and taking that engine to a national Engine Master's competition in Indianapolis. LATI instructors strive to provide real world assessments and challenges for their students to ensure they are ready to meet the demands of working in the field when they graduate.

Quality

There is a cultural of continuous improvement at LATI resulting in quality programs and quality graduates. This culture of continuous improvement and focus on quality resulted in LATI winning the 2017 Aspen Prize for Community College Excellence. (https://www.aspeninstitute.org/) The Aspen review committee recognized the focus on improvement at LATI. "**…it may be no surprise that LATI is the only college to earn the honor of Finalist with Distinction in all three previous cycles of the Aspen Prize. Its top honor for this year's Prize reflects not only strong overall performance but also a consistent dedication to improving**."

Additional Staff

LATI has concentrated the financial support provided by TAACCCT Round 4 to improve the participating Advanced Manufacturing Programs. Several new staff has been hired to support students and instructors. An online Precision Machining instructor was added this year which allowed LATI students to complete this program in two rather than three years.

In addition to a new instructor, TAACCCT funds contributed to hiring an Instructional Designer and two Business Partner Specialists. The Instructional Designer works closely with the Educational Technology

Specialist to provide instructor support and improve instructor teaching practices. The Business Partner Specialists are charged with improving relationship with LATI business partners. One of the Business Partner Specialists is housed at LATI and has been on staff for nearly a year. The other is newly hired, works out of Brookings, and is charged with expanding business relationships with companies in Brookings and surrounding areas.

Equipment Upgrades

LATI has also used TAACCCT Round 4 funds to continuously improve and upgrade equipment including additional 3D printers, lathes, grinders, and mills. Simulation software is continuously assessed and upgraded as well as online education software that supports instructors' work like "Soft Chalk". This attention to continuous upgrades and purchase of equipment results in students receiving a work force ready education. One instructor commented that several touring advisory board members were "**very impressed by the state-of-the-art equipment used in LATI labs to train students."**

Quality Students and Graduates

LATI leadership and staff are focused on student and work force needs. Evidence of this can be seen at every advisory board meeting where business partners make suggestions for program improvement that are taken seriously and often implemented the next semester. Instructors in all five Advanced Manufacturing programs commented on receiving contacts from businesses to provide more LATI graduates to fill open positions in Watertown and the surrounding areas, as well as positions outside of South Dakota. LATI students have interviewed for positions in Georgia and Indianapolis and more than half of Advanced Manufacturing students graduating in May had secured jobs before the end of February.

LATI graduates are not the only LATI students in high demand. Three Robotics students attended the NASA Community College Aerospace Scholars program this year. "The five-week scholars program culminates with a four-day, on-site event at a NASA flight research center and offers students the opportunity to interact with NASA engineers and others as they learn more about careers in science and engineering. While at NASA, students form teams and establish fictional companies interested in Mars exploration. Each team is responsible for developing and testing a prototype rover, forming a company infrastructure, managing a budget and developing communications and outreach." Eight LATI students applied to participate in the NASA program this coming year and the Robotics instructor reports that he **had a call from NASA asking him if 20 of his students would apply.**

This focus on "doing whatever it takes" to ensure LATI students and graduates are work force ready, results in 83% graduation/transfer rates which is three times the national average.

Quality Curriculum

The LATI Advanced Manufacturing curriculum is continuously being improved to ensure that graduates are work force ready. In addition to implementing yearly curriculum changes based on input from the advisory board members, business partners who provide internships for LATI students offer suggestions for curriculum improvements, and graduates working in the field are contacted to provide information about missing curriculum pieces.

Institutional Capacity Improved

Institutional capacity has been improved as a result of grant implementation in a number of ways. New staff has positively impacted enrollment, business involvement and support, and instructor and student support. Enrollment has increased in all five Advanced Manufacturing programs. Instructors and lab assistants have been added as well as additional sections of classes to deal with the increasing enrollment. The Business Partner Specialists are working to increase business involvement and support. Examples of increase business support can be seen in the "Grow Your Own" business model being piloted with Graco and in increases in numbers of businesses taking part in the Career Expos. In the fall of 2016, LATI broke records with 78 businesses participating and in the spring of 2017, 90 businesses were signed-up to participate. Improving institutional capacity is evidenced in applied learning. An important learning for the work implemented in TAACCCT Round 1 was that the needs of online students are different than those of on-campus students. In response to that learning, LATI hired an Online Student Coach to support online students using TAACCCT Round 4 funding. Online instructors report that this support is helping students acclimate more quickly to online learning environments. Instructors have benefited from the expertise provided by the Instructional Designer and the Educational Technology Integrationist who report improvements in instructor pedagogy and teaching practices. This instructor support has also fostered collaboration between departments in shared materials and expertise.

Connections

Connections are beginning to emerge as a result of the implementation of TAACCCT Round 4. Advanced Manufacturing departments are collaborating to share expertise and equipment. One example is the High Performance Engine Machining instructor's report of improved collaboration between departments. "**When we need help with a project with tools and expertise from another department, we go to them and ask for help**." There are obvious connections between quality curriculum, industry support, and placement and retention numbers. Every instructor participates in building relationships with industries that support their program of study which, in turn, results in high placement numbers. Instructors are all involved in recruiting students for their programs which increases enrollment numbers. One instructor has recently expanded recruitment efforts to include upper elementary students.

Successes and Challenges

Project leaders, instructors and "Grow Your Own" participants were asked to define their greatest success in the Advanced Manufacturing work to date and to describe the challenges that remain. Several themes were apparent in their responses.

Successes

- Grant money is focused on continuous improvement efforts including hiring new staff to support students and instructors and upgrading equipment to support industry standard experiences for students. Several instructors identified building state-of-the-art labs as a major success.
- A success identified by department heads was building their programs to accommodate more students and staff and taking pride in placing a high percentage of their students. (99.12% institution wide)
- The high demand for LATI Advanced Manufacturing students provides a great sense of accomplishment for instructors and leadership alike.

Challenges

- Expanding the "Grow Your Own" business model to include additional business partners while paying attention to learnings from the pilot project.
- The balance between growing the Advanced Manufacturing programs and keeping the small school culture that is so successful with LATI students. Growing programs vs. producing quality students.
- Space is a challenge with growing programs.
- Support for the ESL students

Summary

Three themes arose from LATI interviews: Innovation, quality and connections. The innovative "Grow Your Own" business model is being implemented and expansion is being discussed and explored. This will set a new direction for on-line classes and is likely to expand the definition of a LATI student. Though performance-based assessment has always been a strong component of a LATI education, instructors are constantly looking for innovative ways for students to demonstrate knowledge and skills. The NASA National Community College Aerospace Scholars Project is one example of innovation in skills attainment and assessment. The cycle of continuous improvement that is so embedded in the LATI culture results in quality curriculum, quality staff and students, and increased institutional capacity. New connections are emerging as a result of the TAACCCT Round 4 work including Advanced Manufacturing departments collaborating to improve the Advanced Manufacturing program as a whole. Business partners are more involved which has an impact on placement.