Growing Opportunities in Manufacturing Through Bilingual Upskilling

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Acknowledgments

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About Labor Institute for Training (LIFT)

LIFT is an Indiana based non-profit, workforce intermediary organization that works with employers and organized labor to develop workforce-readiness programs. Our goal is to advocate for and assist in expanding worker-centered, sustainable workforce development program strategies to increase and improve individual’s employment opportunities.
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Cover photography courtesy of Labor Institute for Training (LIFT)
Background/Introduction

As technology expands into more and more aspects of the economy, the need for a highly trained, technically competent workforce is being felt across the United States. Nationally, The Manufacturing Institute’s Skills Gap Report states that 54 percent of manufacturer respondents reported a skills shortage for production workers in 2014 that was projected to grow to 63 percent by 2020.

At the same time that companies are unable to find enough candidates to fill well-paying, technology-related occupations, income inequality is growing. For many workers, economic mobility remains out of reach because they lack access to the training and education to prepare them for these “future of work” occupations. In 2019, 71 million U.S. workers didn’t have education beyond high school. And lacking education beyond high school puts people at a much higher risk of poverty and despair.

Although educating and upskilling incumbent workers has the potential to offer economic mobility to those workers lacking the skills companies require, most upskilling does not account for the needs of English language learners (ELL), meaning a large and growing segment of the labor force continues to be left behind. ELL individuals are held back due to language barriers, not by the lack of desire or ability to learn new skills. On-the-job training that meets the needs of a diverse workforce is a crucial step in bridging opportunities for this growing segment of our labor force.

According to a report published by the New American Economy, the demand for multilingual workers more than doubled from 2010 to 2015. Further, in a study conducted by the U.S. Department of Labor (DOL) Employment and Training Administration, small and medium-size manufacturers predicted that their limited English proficient (LEP) workforce would be their future management pool. While this research suggests a demonstrated need for upskilling the LEP workforce, not much is known about how to do this well.

To learn more about how nonprofits, educators, employers, and policymakers can work together to upskill the LEP workforce, JFF interviewed students and instructors who had participated in the pathbreaking and innovative bilingual training program known as GOAL (Growing Opportunities in America for Latinos) in the state of Indiana.

The Labor Institute for Training (LIFT) in Indianapolis, which served as a catalyst for this new program, secured $3.2 million in DOL funding thru the TechHire Grant in 2016; a program aimed at growing advanced manufacturing technical skills for residents with limited English proficiency. The purpose of this grant/initiative was to increase the pipeline of highly qualified and diverse individuals prepared to enter middle- and high-skilled occupations in Indiana’s manufacturing sector. The project also aimed to strengthen systems and capacity, addressing a
lack of skilled-job training opportunities in advanced manufacturing for LEP students and workers.

This was achieved by introducing a new model of instruction in which bilingual training and assessments were made available for the first time in both Spanish and English. The design of GOAL is an innovative approach linking ELLs with occupational credentials, aligning the resources of multiple organizations to build a system to deliver a new bilingual curriculum in manufacturing. The GOAL project combined English language instruction with Certified Production Technician (CPT) training to establish career pathways in manufacturing and advance the skills of Indiana’s industrial LEP labor force. This was the first time that a bilingual CPT was offered. The project used Amatrol’s CPT curriculum along with the corresponding MSSC CPT certification exams translated into Spanish for new and incumbent workers during the pilot phase.

This brief documents the experiences of students and teachers during the DOL-sponsored training and discusses promising outcomes that should be continued.

**GOAL Program Structure**

GOAL is a bilingual English/Spanish manufacturing bridge program for LEP adults. It is a manufacturing skills training program, including contextualized skills in math and computers, that prepares participants for positions with career advancement potential in the advanced manufacturing industry. Classes are hands-on, interactive, and taught in either English or Spanish, or in both languages. CPT training consists of four modules: Safety, Quality Practices and Measurement, Manufacturing Processes and Production, and Maintenance Awareness. Participants earn a credential for each CPT assessment module they pass, and by passing all four, they earn a full CPT certification. This industry-recognized credential can then serve as a crosswalk to connect to postsecondary education by allowing students to enroll in an industrial technology associate’s degree program with some credits already established. While the entire certification has incredible market value, even passing one module can help employees move up and gain essential skills that are crucial in all sub-industries of the manufacturing sector.

To be eligible for GOAL grant-funded training, students must meet the following criteria:

1. Authorized to work in the United States
2. 18 years old
3. Out of high school
4. Native language is Spanish
5. Indiana resident or employed by an Indiana company
6. Ninth-grade-level reading and math in English or Spanish
7. Desire to work in manufacturing
8. Incumbent, underemployed, or unemployed worker
LIFT assembled a uniquely qualified group of collaborators to recruit and serve participants to make GOAL more widespread throughout the state. Each of these partners has contributed to a comprehensive outreach strategy designed to reach unemployed, underemployed, and incumbent workers in manufacturing firms. Creating awareness among employers, assisting in job placements, and providing wraparound services were done in partnership with collaborators. Statewide outreach strategies included flyers and brochures; radio, TV, and Facebook broadcasts; career and education fairs; and personal and partnership connections.

There were three methods of delivery for the GOAL program, including in-person, hybrid (in-person and online), and synchronous (entirely online). Different methods were used to capture more students. That is, some students were ready and able to complete the classes solely online, while others needed more in-person interaction. Tutoring and mentoring was also offered by instructors. Classes were taught either in English or Spanish, or in a combination of the two depending on the language the teachers spoke. In-person classes were held in different settings, including a college campus, nonprofit organizations, and workplaces. These different settings were part of the strategy to be far reaching. The training is free of cost to eligible participants and is valued at $3,000. In addition, GOAL students who did not have easy access to a computer were provided an option to check out a LIFT laptop PC. Other partners provided portable Chromebooks as part of their standard course supplies.

GOAL is working to enroll 400 LEP unemployed, underemployed, or incumbent workers by June 2020, resulting in at least 276 participants with CPT credentials by the grant’s end (see tables 1 and 2 for progress at time of publication).

Case Study Methodology

With the help of LIFT, JFF interviewed eight students who either were currently in GOAL or had recently completed the GOAL program. We did not speak to any students who had dropped out of the program. This was a convenience sample where, on our behalf, LIFT sent invitations to students across each delivery method to participate in interviews. All interviews were conducted in English with Spanish translation.

The same protocol was used across interviews. JFF also spoke to two instructors to get their perspectives on the program. One was conducted in English with no translation, and the other had an interpreter on the line, as in the case of the student interviews. The LIFT program manager served as the interpreter for both student and instructor interviews. Interviews were transcribed and analyzed thematically.
Key Findings

Decision to participate in the program and recruitment

Most of our interview participants heard about the GOAL program from friends, colleagues, and coworkers. Several were invited by an employer to attend, and a substantial amount of others learned about GOAL through a dynamic adult education partnership with Horizon Education Alliance and Goshen College. Students enrolled to learn more about manufacturing processes and safety, and to build skills and certifications for better employment opportunities and promotions. Several students had higher education achievements (e.g., engineering degrees) from other countries that were not easily recognized in the United States. Their aim was to use the training to contextualize and transfer prior learning achievements, like an industrial engineering degree, to the U.S. context.

I knew about the certification and how you get a certificate after each module and at the end of certification that is recognized nationally, internationally, and it’s in the areas of manufacturing and production. I knew that by getting this certification, I would be able to get employment that’s worthy of helping me with my economic condition. Student No. 3

I decided to be part of this program because I have a degree in industrial engineering from [a Latin American country]. I have been in that field for 15 years. I am utilizing this [course] like a refresher but also to help me in my career here in this country so that it can bring me to where I need to be, to where I was in my country, so I could utilize the industrial engineering here in this country. Student No. 4

Student background and career goals

Students came into the program with a range of prior educational and work experiences in manufacturing or engineering, including forklift operator, petroleum or industrial engineer (in their home country), and manufacturing technician. One person we spoke with had previously worked as a medical assistant but was at the time unemployed. It is interesting to note that, because engineering degrees from Latin American countries do not easily transfer to the United States, students with this type of advanced education were employed in fields outside of engineering, including as a clerk at Walmart and as a quality control staff at an auto manufacturer.
All professionals with degrees in native languages (multiple) self-directed. I am just guiding them through the program and working through translation issues on terms they may not have known before. I am impressed with them. Teacher No. 1

We have to make sure they meet these minimum requirements for reading and math. Teacher No. 2

I have seen a variety of levels in the class. Some are professionals, others are lower. Teacher No. 2

Students told us that the GOAL training helped them to clarify their career goals, which included promotion to a more “thinking” role in manufacturing versus their current physical role, becoming an educator in safety and engineering training, and moving into project and quality control management and supervision positions. There was overwhelming agreement by students that the training would help them further these goals. Program practice demonstrated that screening math and reading skills in English or Spanish was more beneficial to student success than prescreening for English language abilities.

I am interested in any area that would allow me to do either projects or program management, especially during industrial construction or manufacturing, that allows me the opportunity to become either a program or project manager. Student No. 5

My goal is to work with less physical ability and more mental ability in manufacturing. Student No. 6

I know that the program brings certification and that not everyone where I work has these certifications. And that will be something I can present to my employer for the opportunities to have more flexibility not only with the schedules, but also allowing me to advance and to reach my goals. Student No. 6

Program structure

Whether enrolled in the hybrid (in class and online) or synchronous (online instructor) class, the students liked the flexibility that the online platform provided. Importantly, the online format enabled students to fit study into small time periods throughout the week around other obligations like work and family care.

It can be very complicated for Latino families, especially those that have migrated over here, the immigrants, because they don't have family here to help them with their children. So having it online and having the capability of this model, of the way
they offer the course, is ideal. It is actually the reason why I didn’t start any other program anywhere else. Student No. 5

The students were also grateful that the program was provided for free. The Spanish-language learning option also opened up opportunities for ELLs who would not have otherwise been able to participate.

The opportunities that are given to the people in the community that are less fortunate, either [because of a] language barrier or financial barriers—whatever the barriers may be—that this particular grant offers to individuals like myself who normally wouldn’t have these opportunities … to help improve their work and employability and what they earn. Student No. 3

Instructors served as teachers, mentors, coaches, and navigators and were key to students feeling well supported, engaged, and motivated. Students also valued learning from peers and problem-solving together.

[The training provided] access to computers, access to the ability of doing things from home online, the allowance of dedicating time well managed on the material by allowing these things. Also the dialogue—there’s a constant dialogue that’s open. An open dialogue with instructors at all times to ask any questions has been very helpful and very satisfactory. Student No. 3

Training benefits to students

The students told us that the training was helping them build confidence in skills and self-efficacy at work. Self-efficacy, in particular, enabled students to feel more capable about identifying and solving technical problems on the job. In addition, the training had expanded their knowledge of manufacturing and engineering in general but also more specifically in terms of how manufacturing and engineering is implemented and structured in the United States (e.g., OSHA regulations).

Even though many had been educated and worked in advanced manufacturing or engineering in their home countries, understanding the culture of work in general and manufacturing more specifically in a new country, along with new policies, regulations, and unwritten rules, can make the transition of prior educational and work experiences from one country to another a challenge. This training helped to fill both technical as well as culture gaps.

[The training] helped me a lot because I learned so much that I am utilizing, and I notice that I know more than some of the leaders and some of the supervisors. Student No. 1
Many students began applying at their workplaces what they were learning about safety in manufacturing even before the training had ended. GOAL expanded their understanding of why they were being asked to follow certain procedures at work. Where previously they did not understand why small problems on the shop floor needed to be immediately addressed, through the training, they learned the importance of addressing them before they became larger and more difficult to fix. Even before the training ended, some students began to take on leadership roles in their workgroups to teach others about key safety principles.

I realized now, after this program, that those small problems add up and develop into really big problems. And I noticed that the big problems that they have were due to the small problems that were not addressed. And I learned that mainly in the quality module, especially with measurements. Student No. 1

I have a clearer understanding of what exactly needs to be done when the machine is showing an alert for an oil maintenance. I got to get the oil in there and know how important it is to oil it up if it's going low because of the dangers that come with leaving it low. And I know what it means when I pass a machine that has a lockout on it and what I can and cannot do. Student No. 2

All of the students we interviewed believed that the training would help to further their career goals.

Learning is great. And most importantly, it will reinforce what I bring from my own country. Student No. 4

I have invited many individuals to be part of this program. I think that this program is a super, super opportunity. I am very grateful for being granted the opportunity to be part of this program. It's like a perfect gift, a gift that's been given to me, granted to me. That's how I see it. Student No. 8

Training benefits to employers

In addition to benefits to the students, employers benefit from the enhanced safety skills and awareness that program graduates bring to their jobs. Most significantly, since GOAL graduates are more aware of the importance of safety and quality on the shop floor, they can preempt the development of large problems by addressing smaller problems as they occur.

Students repeatedly told us how they were integrating skills learned in class into their work and teaching others about their importance. As a result, they were becoming leaders and mentors in their work teams. Having the ability to quickly identify and fix small problems before they get bigger ends up saving employers time, money, and resources. For those students whose training
was sponsored by an employer, it also meant a show of confidence in the student and in the student’s value to the company. This translated into enhanced loyalty and the desire to grow in the company.

My supervisor told me he sees a huge difference since I started the program. He sees how my skills have developed tremendously. He sees that my attitude is totally different because now I have a clearer understanding of the production process that I learned in the class. I applied it to work, and now my boss also noticed a difference. Student No. 2

[The training] gave me a clear understanding as to what is it that the company is wanting. And when I figured that out, then I also know why the company wants it. I have a clearer understanding why companies do what they do. And then I have a totally different appreciation and outlook. When I go to work, now I understand. Student No. 2

Some students, however, felt that their employers were not fully aware of the skills they were learning and how these skills were benefitting the company. Developing employer awareness of the benefits of training for their workforce and business would help to engage employers to provide more of this training to their staff.

It would help to give information to companies so that they understand what this program consists of, so they can open the door to give people opportunities, employment opportunities. ... If the company understood the benefits, this would open up a lot of doors for individuals, and it may even open up the desire of people wanting to go through the program because there’s a lot of people that may want to be going into these manufacturing companies to work. Student No. 6

Training challenges to students

The most significant challenges students faced in this training had to do with translation and time management. In regard to translation, most students told us that the meanings of technical terms and contexts often were not clear in learning materials, which made learning and tests more difficult, and made it more challenging to successfully pass the training. To improve student retention and address significant language translation barriers, students who requested a bilingual instructor were assigned one.

I am currently enrolled in the Spanish program and know that many of the words that are utilized are not words that can be understood. There are contradictions in the words from one part to the next. Sometimes the words are so strange that no one really understands them. Student No. 8
Because the translated version sometimes didn’t make sense, I had to reread and reread and reread until I grasped the idea of what they were trying to say. Then I would get it. But if that was translated correctly, it probably would have alleviated a lot of time that was consumed. Student No. 7

When I initially started the program, I was given an instructor who only spoke English. The entire program was given to me in English. And even though I know some English, I had issues with translation. The translations didn’t make sense. And when I went to take the test, they made me take the test in English and I didn’t pass it. Student No. 6

There was an expectation instructors were going to translate, but we don’t have time to do this. Teacher No. 1

In terms of time, because all of the students had competing demands—including one or more jobs, family care responsibilities, and lack of transportation—it was a challenge to fit in time for classes and homework, which students estimated to be about eight to ten hours per week. The time pressure may be especially difficult for those lacking a manufacturing background, requiring them to put in more time to successfully complete the modules. For the in-class model of instruction, it was noted that students didn’t have time to eat dinner between the end of their shifts and the beginning of class, which lasted another three hours. As a solution, LIFT used other funds to bring in meals for students.

The biggest challenge that I have right now is the time constraints. My husband is also part of the program. … Right around the time where it's time to test, if either one of us has to work overtime, it becomes a challenge because we’re trying to get ready for examinations and have to make sure that we manage our time correctly. Plus, we’re trying to manage a household and we have children. It really becomes difficult to manage our time when we’re asked to work overtime. Student No. 8

Time challenges, which may be viewed as a lack of commitment to the training, lead some students to stop midway. This might lead to a negative feedback loop whereby employers don’t see a benefit from the training and thus don’t want to commit resources to further training, reducing opportunities for others.

Some students come in with the intention of completing the program, but then they'll get a certificate or two and they think that that's sufficient and then they drop out. And then they go to work with the couple that they have and they end up doing the same job, make the same pay, doing the same thing, because they didn’t complete it. They didn’t go above and beyond their knowledge base, when that’s very necessary in order for them to actually get ahead at work. They have to complete the entire program. And when a person completes the program and brings
back that wealth of information, they also need a commitment from their employer to say this is important. And only then will that make it complete. Student No. 4

Despite these challenges with translation, time, and commitment, students said the training was worth it and would tell other prospective students to stick with it and prioritize homework in order to be successful. One student, for example, quit a second part-time job, giving up necessary resources, to have time for more study. The student felt in the end that it was going to be worth it in helping them advance their career goals.

Promising Practices

In this next section, we consider the lessons learned from the experiences of students and instructors who participated in the GOAL program. We summarize these findings as promising practices that organizations interested in implementing bilingual manufacturing upskilling programs can consider when developing their programs.

- Recruit students who are genuinely interested in building engineering and manufacturing skills, which will make it easier for students to be engaged with the material and committed to the learning.

- Provide students pre-course enrollment access to basic career-readiness tools, math, and reading, for review in English and/or Spanish.

- Ensure accurate translation of course materials and tests.

- Provide bilingual teachers to support contextualized ELL.

- Educate employers on the benefits of GOAL training to worker retention, productivity, and efficiency, so that training translates into higher wages and promotion opportunities for graduates.

- Embed training into a clearly defined and feasible career pathway with advancement opportunities.

- Allow students to use work time for homework to help alleviate time constraints and show support.

- Expand access to basic technology by providing a laptop as part of basic course supplies.
● Get the word out with graduates. Many students are amazed that the program exists and grateful they had the chance to participate. They want more people to know about it.

● Provide opportunities for graduates to share experiences and mentor potential and current trainees.

● During the training and post-training, collect student feedback and survey graduates six months after the program to assess longer term outcomes.

Conclusions

The GOAL program provides upskilling opportunities to Indiana’s growing Latinx population while at the same time helping manufacturing employers fill employment gaps. As GOAL has shown, LEP pathways into advanced manufacturing occupations are good for both employers and LEP employees who are eager to advance and contribute to U.S. manufacturing. The training provides a needed opportunity for engineers from other countries to earn the U.S. credentials necessary to build up U.S. manufacturing with skills that otherwise would remain unused. For those lacking engineering degrees, the GOAL program has the potential to provide a pathway into high-wage employment that would otherwise not be available.

Table 1. Demographics of Participants

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<thead>
<tr>
<th>Age Range</th>
<th>Average Age</th>
<th>Gender</th>
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<tbody>
<tr>
<td>18 to 72 years</td>
<td>39.1 years</td>
<td>123 Male, 108 Female</td>
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Table 2. Enrollments and Completions to date

<table>
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<tr>
<th>Number of Participants Served</th>
<th>Total Number of Credentials Awarded</th>
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<tbody>
<tr>
<td>231</td>
<td>281</td>
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Endnotes

1 This report was prepared before the devastating impact of the coronavirus was felt on the U.S. economy.


6 English language learners (ELL) and Limited English Proficient (LEP) are often used interchangeably. See: https://ncte.org/blog/2017/09/esl-ell-generation-1-5-why-are-these-terms-important/.


11 Over $150 million in the H-1B TechHire grant program has been awarded to 39 partnerships providing training in 25 states across the country. More than 18,000 participants will receive services through the TechHire grant program, with a focus on youth and young adults ages 17 through 29 with barriers to employment, as well as veterans and individuals with disabilities, limited English proficiency, criminal
records, and long-term unemployment. Training will center on high-growth sectors, including information technology, advanced manufacturing, and health care: https://obamawhitehouse.archives.gov/sites/default/files/skills/techhiregrant-summaries_final.pdf.

From 2016 to 2020, JFF provided comprehensive executive services to the Labor Institute for Training (LIFT) and its project partners to support management and implementation of the GOAL project.

MSSC is an industry-led skill certification system focused on core skills and knowledge needed by frontline production and material handling workers: https://www.msscusa.org/certification/production-certification-cpt/; Amatrol designs, develops, and manufactures technical learning systems, interactive eLearning, hands-on simulators, and more to prepare individuals for manufacturing careers. Amatrol developed the customized Certified Production Technician (CPT) curriculum for MSSC’s industry-recognized credential: https://amatrol.com/about-us/.

Partners on the project included state agencies Indiana Department of Workforce Development, WorkOne American Job Centers, Workforce Development Boards and Adult Education providers; educational institutions Goshen College and Ivy Tech; community-based organizations Horizon Education Alliance (HEA), Su Casa, Venezuelan Association, McDowell, and the Mid-America Science Park (MASPark); Morales Staffing; and manufacturing employers Lippert and Cummins.

The in-person model had a classroom setting and was instructor led. The hybrid model was a combination of in-person and online classroom-style learning but length of time is flexible, from 9 to 16 weeks. The synchronous model is totally online, where participants watch lectures at designated times and interact with instructors in real-time. The LMS (learning management system) is done by students on their own time, and the instructor monitors completion.

An important partnership to highlight is between LIFT and Horizon Education Alliance. HEA is one partner that administers the educational part of GOAL via Goshen College, a private four-year institute in Elkhart County, Indiana. Goshen College is leading the way in equity as they continue their efforts to target education service expansion for the Latinx community. They are close to becoming a Hispanic Service Institute (HSI), which means that over 25 percent of their enrolled students are Hispanic. Having a college in the county that reflects the diversity of the community it operates in is incredibly important. Goshen College also has a bilingual staff member serving in the position of multicultural outreach community liaison to help with the recruitment of GOAL participants. For more information, visit https://record.goshen.edu/2019/09/36953-gc-nears-goal-of-becoming-hispanic-serving-institution and https://sites.ed.gov/hispanic-initiative/hispanic-serving-institutions-hsis/.

The 2010 national census showed a 55 percent increase in the Latino population of Indiana over the previous decade. This is expected to continue to grow. See: “Indiana Population Projections by Race and Hispanic Origin,” InContext 9, no. 8 (September-October 2008), www.incontext.indiana.edu/2008/sept-oct/1.asp.