East Los Angeles College: Technology & Logistics Program

TAACCCT Final Evaluation Report

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Executive Summary

The United States Department of Labor, Employment and Training Administration awarded East Los Angeles College's (ELAC) Technology and Logistics Program the *Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant* in the amount of 2.9 million dollars in 2012. The project aimed to elevate ELAC's success in preparing program participants for a wide range of high-growth logistics jobs in a geographic area that is home to the fifth (5th) busiest port in the world.

The logistics industry is a cluster of industries and occupations that plan, coordinate, and fulfill all commercial, government, and military movement of assets, information, people, and services from the point of origin to consumption. ELAC is the first community college in Southern California to offer college credit courses that allow students to learn all facets of the Manufacturing Skills Standard Council (MSSC) industry-recognized, nationally portable credentials. The MSSC certificates -- Certified Logistics Associate (CLA) and Certified Logistics Technician (CLT) -- address the core competencies of higher skilled, front-line material handling workers, from entry-level to the first line of supervision, across the global supply chain.

TAACCCT Program/Intervention Description and Activities

The TAACCCT-funded Logistics program developed and enhanced courses, finalized an Associate of Science degree in Technology & Logistics, and provided various supports for program participants in an effort to increase student success in the program and beyond. The support services included: (1) online student coaching, (2) career/job coaching, (3) life/academic coaching via career guidance counselor assistants, and (4) academic counseling.

- *Online Student Coaching*. Using Études, a course management system, students and faculty could interact via online discussion forums on a range of topics such as time management, study skills, and achieving goals.
- *Career/Job Coaching*. Workshops on job readiness skills (i.e., résumé writing, interviewing) were presented by a career/job coach. At the end of the workshop, students walked away with useable products such as a résumé and cover letter.
- *Life/Academic Coaching via Career Guidance Counselor Assistants (CGCA).* CGCAs were available to provide one-on-one coaching and mentoring to help students discover and resolve issues limiting their participation in college classes.
- *Academic Counselor*. A counselor dedicated to the Logistics program provided academic counseling and educational planning support.

Evaluation Design Summary

The evaluation design consisted of an implementation and outcome study which

documented key program elements and assessed student outcomes (e.g., program completion, credentials/certificates earned, employment). A multi-method approach with a combination of quantitative and qualitative methods was used to demonstrate improved student performance outcomes as a result of the funded program.

The implementation study consisted of stakeholder interviews, student focus groups, and student surveys to document key program elements and changes, assess involvement of partners, and obtain student feedback. The outcome evaluation included an impact analysis comparing the TAACCCT-funded Logistics program against a comparison group, reporting of the nine student performance outcomes articulated in the *Solicitation for Grant Applications*, and additional findings from a student exit survey.

Summary of Findings

During the course of this grant, the program accomplished the following:

- Develop a 3-unit course in *Leadership in Logistics*
- Developed hybrid, online versions of three courses
- Enhanced courses with various simulated logistics management software
- Developed a 9-unit *Leadership in Global Logistics* skills certificate
- Finalized an Associate of Science degree in Technology & Logistics

The evaluation tracked 504 students divided into three (3) cohorts based on the academic year in which they began the program. One hundred seventy one (171) students joined the program in year one, 140 students joined the program in year two, and 193 students joined the program in year three.

- Forty-nine percent (49%) of program participants completed the program compared to the college-wide completion rate of 30%[1]. .
- Forty-two percent (42%) of program completers who were unemployed at enrollment were employed the quarter after completion.
- A majority (70%) of Exit Survey respondents currently have either a part-time or full-time job. Out of this pool of respondents, there are now 13 more students with jobs -- a third more -- than at the start of the program.
- When compared against students in the Automobile Technology (AutoTech) program, Logistics program students were more likely to complete their pathway. Logistics program students were also more likely to receive a certificate or degree in their respective field.

[1] East Los Angeles College Facts in Brief. Retrieved September 25, 2016 from https://www.elac.edu/facultyStaff/oie/docs/Fall%202015%20Facts%20in%20Brief.pdf

- Employment and wage data indicate that Logistics program students are earning, on average, $1,854 per quarter more than AutoTech students, although a larger percentage of AutoTech students are employed (63.7% vs. 58.8%)[2].

- Almost all students (92%) reported that they were "satisfied" or "very satisfied" with the education, training, and services received from the Logistics program, and the various support services were considered "helpful" or "extremely helpful" by a majority of survey respondents (76% to 89%).

- Students provided feedback on aspects of the program that they would like to see improved. The responses were varied, but some weak themes emerged. Of these, the most common suggestions were for (a) hands-on training (b) field trips/relevant industry tours, and (c) training in logistics-relevant software.

Finally, two important themes emerged during interviews with key partners regarding successful and ongoing collaboration. One was the importance of a reciprocal relationship in sustaining a partnership in which both parties contribute. The other was the importance of a strong and positive working relationship with people who genuinely care about their students. It was clear from these interviews that both are in existence between ELAC and its major partners.

> *"I got a job. A career path. A raise. I am in school and it has made all the difference in my life as a single parent for my son."*
>
> *-- Logistics Program Participant*

[2] These findings need to be interpreted with caution as they did not take into account baseline differences in student characteristics and whether or not the student completed their respective programs.

Background & Purpose

East Los Angeles College's (ELAC) Technology & Logistics (Logistics) Program helps prepare students for 21st Century jobs in the field of transportation and logistics. Transportation and logistics (also called Goods Movement) is a cluster of industries and occupations that plan, coordinate, and fulfill all commercial, government, and military movement of assets, information, people, and services from the point of origin to consumption[3]. More than $100 billion worth of cargo moves through the Long Beach / Los Angeles port system and area every year, creating jobs, supporting retail and manufacturing businesses, and generating tax revenues. Front-line logistics workers must possess what some employers call "cross-functional smartness" along with environmental awareness, communication and teamwork abilities, customer service, applied math skills, quality assurance, occupational safety principles, and specific job skills. More advanced positions, salaries, and promotions are closely tied to workers competencies in key technologies. The high-growth occupations in the logistics-related fields targeted by this project included: Managers of Transportation, Storage, and Distribution; Logisticians; Clerks in Production, Planning, and Expediting; Stock Clerk; and Order Fillers and various titled positions within the following growing, elevated-skills logistics product and service areas: Computerized Order Receiving, Random Product Testing & Measurement Equipment, Geographic Information Systems, Truck Routing, Laser Scanners, Global Positioning System Tracking of Vehicles, Internet Communications, Personal Digital Assistants, Robotic Goods Handling, and Manufacturing Inside Warehouses.

At its inception, ELAC's Logistics program was industry-driven with financial support from the college, the District, and a local AJCC/America's Job Center of California (formerly known as WorkSource Center). Back in 2007, the initial pilot classes were held at the local AJCC. Since then, the Logistics Program has been awarded a number of grants which has led to the development of various courses, stackable certificates, and an A.S. degree that are offered today at the college.

The purpose of this final evaluation report is to provide results for both the implementation study and outcome analyses of the Logistics program that was funded by the 2012 Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant for 48 months. As indicated in the original proposal, the evaluation focuses on assessing the effectiveness of the program to increase attainment of certifications, certificates, diplomas, and other industry-demanded credentials; introduce innovative and effective methods for curriculum development and delivery that address specific industry needs; and demonstrate, for TAA-eligible workers in particular, improved employment outcomes as a result of the funded program.

[3] About Logistics. (n.d). In Technology & Logistics at East Los Angeles College. Retrieved from http://www.elaclogistics.com/logistics.html

Evaluation Design

The overarching goal of the program was to improve student retention and program completion for TAA and other displaced workers, veterans, and the general student population in the high-wage, high-skill employment sector of transportation and logistics. The evaluation design consisted of an implementation and outcome study which included the documentation of key program elements and assessment of student outcomes (e.g., program completion, credentials/certificates earned, employment). A multi-method approach with a combination of quantitative and qualitative methods was used to evaluate the program. This combination of strategies provided multiple, independent sources of information concerning the delivery and level of success of the program.

Implementation Study

The implementation study consisted of stakeholder interviews, student focus groups, and student surveys. The research questions which guided the implementation study were:

1. How was the particular curriculum selected, used, or created?
2. How was the program improved or expanded using grant funds? What delivery methods were offered? What support services and other services were offered?
3. Was an in-depth assessment of participant's abilities, skills and interests to select participants into the grant program conducted? What assessment tools and process were 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?
5. How satisfied were the students with the education and support services which were provided?

Data Sources

Table 1. Description of Data Sources

Method	Description
Semi-structured Interviews	Seven (7) interviews were conducted with program staff, employers, and other partners over the course of the grant. Information was gathered about their role and contribution to the program, as well as successes and challenges. Those interviewed included counselors, a career guidance counselor assistant, job coach, employer, and staff from an AJCC and County Office of Education.
Intake Form and Assessment	A custom-designed intake form was developed for the project. The front of the intake form collected student contact information, student ID number, social security number, demographic information including gender, ethnicity, education level, education status, employment status, and special status (e.g., veteran, disabled, referred from AJCC). The back of the intake form was a questionnaire designed to assist students in selecting the Logistics classes and/or certification program that best suited their needs based on their prior course success and employment experience. Program participants completed an intake form at the time of entry, which assisted in placing students in appropriate level courses.
Student Surveys	The student survey was custom designed in collaboration with project staff and was administered to students at the end of every semester. The focus of the survey was to gather feedback on the various components of the program and the students' education and career/employment plans (Appendix A).
Focus Groups	Focus groups were conducted with Logistics program students each year with 8-10 students in each group. In the first focus group conducted in the fall, the students were separated into two groups, one focus group of new/incoming students and another group of continuing students. The focus groups explored what participants thought about different components of the program, how they heard about the program, and what they liked the best and the least.

TAACCCT Program Description and Activities

Since 2012, ELAC's Logistics program has developed courses, finalized an Associate of Science degree in Technology & Logistics, as well as provided support services for its students in an effort to increase student success in the program and beyond. ELAC is the first community college in Southern California to offer college credit courses that allow students to learn all facets of the Manufacturing Skills Standard Council (MSSC) industry-recognized, nationally portable credentials. The MSSC certificates -- Certified Logistics Associate (CLA) and Certified Logistics Technician (CLT) -- when combined are recognized by the International Organization of Standardization. The CLA and CLT certifications address the core competencies of higher skilled, front-line material handling workers -- from entry-level to the first line of supervision -- across the global supply chain.

Thanks to the program's most recent grant from the U.S. Department of Labor (DOL), all MSSC textbooks, online e-learning portals, testing and national certifications are free of charge. In addition, optional Security, OSHA and HazMat training and certificates are

offered at no cost to qualifying participants. Participants with prior logistics work experience or veterans can qualify for advanced placement to obtain a MSSC CLA certification in as little as 8 weeks and can achieve ELAC's Logistics Skills Certificate (11 units) in one semester (16 weeks). All of these college-credit courses lead to a Technology & Logistics AS (Associate of Science) Degree and the possibility of transfer to any California university.

Technology & Logistics Courses

At the time the TAACCCT grant was awarded, there were five logistics courses (Logistics 101, 102, 103, 104 and 105), four of which were grant supported (Logistics 102, 103, 104, and 105). During the course of the grant, a 3-unit course in *Leadership in Logistics* (Logistics 106) was developed to address an industry need to train workers with leadership skills. The course introduces the logistics environment, leading vs. managing, the key elements of leadership, the interrelationship between trait and behavioral leadership theories, influencing, communicating, coaching/mentoring, conflict resolution, team logistics leadership, ethics and diversity, and developing a logistics leadership culture.

Enhancement of online and technology-enabled learning continues to be a big part of the program. Hybrid online versions of Logistics 104, 105, and 106 were developed and offered to students. Simulated logistics management software which introduces key logistics concepts was incorporated into the curriculum. ArcLogistics by ESRI is a geographic information systems (GIS) software that is commonly used in the logistics industry and is included in Logistics 105. Logistics 102 includes a workstation warehouse simulation game (Virtual Business Management 2.0). In addition, Logistics 103 incorporates Excel and Fishbowl inventory software (which easily plugs into QuickBooks) so that the students receive a "real world" experience in what is actually used in industry.

Certificates and Degrees

The Logistics program offers stackable skills certificates (9 - 17 units), a Certificate of Achievement (27 units), and an Associate degree (60 units) in logistics (See sidebar). Along the way, students can earn two logistics national certifications (Certified Logistics Associate and Certified Logistics Technician) which are nationally portable logistics credentials from the

Certificates and Degree in LOGISTICS

- Associate Degree in Technology & Logistics (60 units)
- Certificate of Achievement (27 units)

Nationally Recognized Certifications:

- Certified Logistics Associate (CLA)
- Certified Logistics Technician (CLT)

Skills Certificates:

- Leadership in Global Logistics Certification (9 units)
- Logistics Material Handling Certification (11 units)
- LOGISTICS Skills Certificate (Level 1) 11 units
- LOGISTICS Skills Certificate (Level 2) 17 units

Manufacturing Skills Standard Council (MSSC). The TAACCCT funding made it possible for participants to take the certification exams at no cost (Usually $460 per student which included both CLA and CLT exams). During the course of the grant, a nine-unit *Leadership in Global Logistics* skills certificate was developed and the Logistics AS degree was finalized and approved. The list of skills certificates and the courses required for those certificates are provided in Table 2.

Table 2. Required Courses for Logistics Skills Certificates

Technology and Logistics Skills Certificate - Level 1 (11 UNITS)	Units
LOGISTICS 101 - Technology in Global Logistics	1
LOGISTICS 102 - Concepts in Global Logistics	2
LOGISTICS 103 - Inventory in Global Logistics	2
CAOT 82 - Microcomputer Software Survey in the Office	3
MATH 105 - Arithmetic (or higher Math level)	3
Total	**11**
Technology and Logistics Skills Certificate - Level 2 (17 UNITS) (Add two more courses - 6 units - to the above listing.)	**Units**
CAOT 32 - Business Communications	3
CAOT 48 - Customer Service	3
Total	**17**
Logistics Material Handling Certification (11 UNITS)	**Units**
LOGISTICS 101 - Technology in Global Logistics	1
LOGISTICS 102 - Concepts in Global Logistics	2
LOGISTICS 103 - Inventory in Global Logistics	2
LOGISTICS 104 - Logistics: Cornerstone Essentials	3
LOGISTICS 105 - Green Logistics and GIS Technology	3
Total	**11**
Leadership in Global Logistics Certification (9 UNITS)	**Units**
Logistics 104 - Logistics: Cornerstone Essentials	3
Logistics 105 - Green Logistics and GIS Technology	3
Logistics 106 - Leadership in Logistics	3
Total	**9**

Support Services

Students enrolled in the Logistics program were supported by five types of support services aimed at helping them succeed. These were (1) online student coaching, (2) career/job coaching, (3) life/academic coaching, (4) academic counseling, and (5) career guidance counselor assistants.

Online Student Coaching. In online student coaching, all students enrolled in face-to-face and online classes supported by the grant could access online coaching resources on various

topics such as time management, study skills, and achieving goals. This was accomplished via Études, a course management system, which also allowed for interactive online discussion forums between students and faculty.

Career/Job Coach. A career/job coach provided Logistics program students with job readiness services such as workshops on résumé writing, interviewing skills, and mock interviews, as well as assistance with job searches. The career coach, well-versed in the industry and program, was dedicated specifically to program students. This career coach presented hands-on workshops where students walked away with useable products such as a résumé and cover letter. The length of the workshop depended on need and the number of participants, but generally consisted of 10 – 15 students for about 4 hours.

Life/Academic Coaching. One-on-one life/academic coaching was offered to Logistics program students to discover and resolve issues limiting their participation in college classes. The coaching was designed to strengthen students' commitment to completing the program and be able to take the next step in their career advancement.

The initial coaching started with a "tuning" phase in fall 2013 during which time twenty (20) students were contacted multiple times and individually coached. However, the company originally contracted to provide this service was unable to provide the data for which they had been contracted. Therefore, the Logistics program staff quickly developed a modified strategy for providing coaching to all their students. By the end of the same academic year, the program hired three Career Guidance Counselor Assistants (CGCA) for coaching/mentoring (see below for description of CGCAs).

Academic Counselor. Students in the Logistics program also had access to an academic counselor versed in the logistics pathway. This counselor was available to support students with academic counseling and educational planning, including assistance with developing education plans. The addition of three CGCAs in the middle of year two provided even more support to students in terms of education and employment planning and ensuring that students complete the program.

Career Guidance Counselor Assistants (CGCA). The CGCAs have multiple roles as they provided daily or weekly coaching/mentoring to students, assisted students in preparing their Employment Training Programs and Student Education Plan for the Logistics counselor, and conducted academic coaching workshops.

Technology & Logistics Program Participant Demographics

During the course of the grant, the evaluation tracked 504 students divided into three (3) cohorts based on the academic year in which they started the program (*Table 3*). One hundred seventy one (171) students joined the program in year one, 140 students joined the program in year two, and 193 students joined the program in year three.

Table 3. Number of Students per Cohort

Cohort	Academic Year of Program Entry	Number of Students
1	2012-13	171
2	2013-14	140
3	2014-15	193
	Total	504

Almost two-thirds of the students were male (63%) and the majority were Hispanic (62%) (*Figure 1*). Thirty-one percent (31%) were White, while over a quarter (27%) declined to self-identify (*Figure 2*).

Figure 1. Gender and Ethnic Category

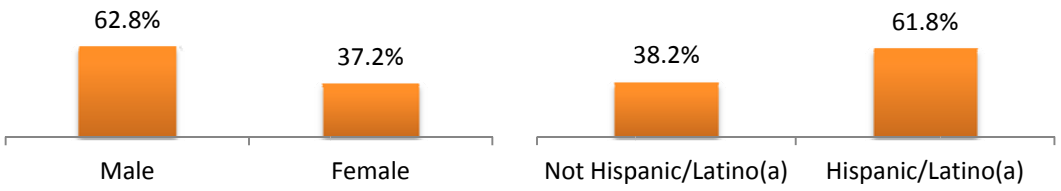
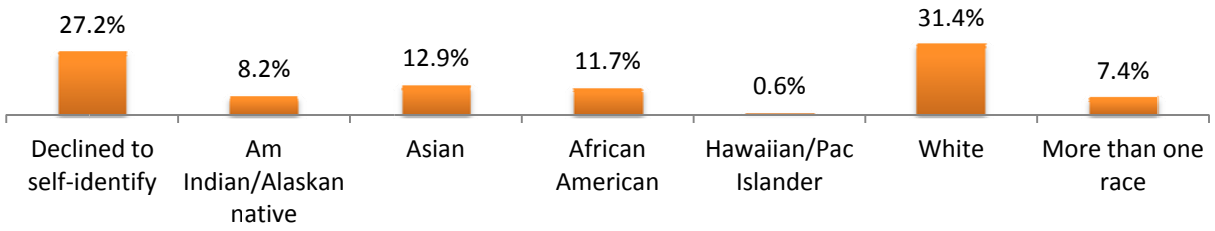


Figure 2. Ethnicity



The majority of the participants of the program (70%) reported that a high school diploma, GED or equivalent was their highest education completed. Ten percent (10%) of the students had an Associate degree and another 13% have a Bachelor degree (*Figure 3*). Slightly over half the students (56%) reported that they were unemployed when starting the program (*Figure 4).* Veterans made up 13% of the student population (*Figure 5*).

Figure 3. Highest Education Completed

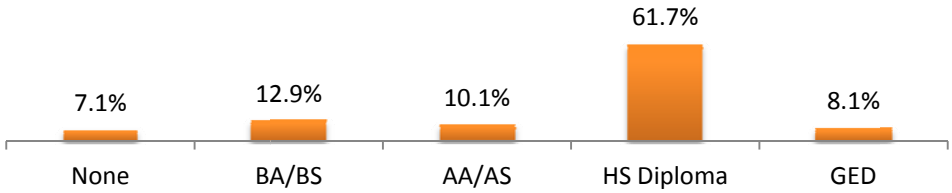


Figure 4. Employment

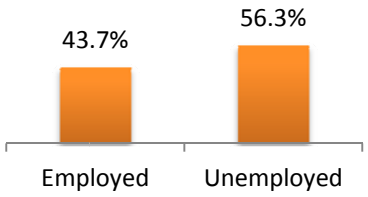
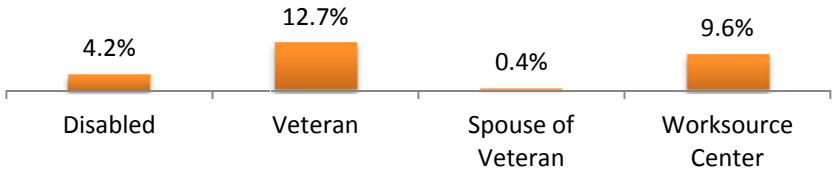


Figure 5. Special Status



Student Survey Findings

A total of 284 unique students (56%) completed 419 surveys in years one, two, and three (*Table 4*). *Note that students were asked to participate in a survey every session so could take the survey multiple times in one year, but only once per semester.* In year one, 57 surveys were completed during the spring and summer. One hundred twenty nine (129) surveys were completed in year two and 233 surveys were completed in year three.

Table 4. Number of Student Survey Participants

Semester	Year 1* 2012/13	Year 2 2013/14	Year 3 2014/15	Total
Fall	n/a	51	99	150
Winter	n/a	33	28	61
Spring	36	31	60	127
Summer	21	14	46	81
Number of surveys	**57**	**129**	**233**	**419**
Number of unique students	**52**	**101**	**165**	**284**

* No surveys were administered in fall and winter of year 1 since the first cohort of participants started in the spring.

Reasons for Enrolling in Logistics Course/Program. When asked about future plans in the technology and logistics field, almost all the respondents (94%) planned on obtaining a logistics-related certificate or degree and an overwhelming majority of respondents (90%) were planning to pursue a career that involves technology and logistics skills.

Students were also asked to select up to three reasons -- in order of importance -- for taking courses and/or obtaining certificates/degree in logistics. The top three reasons chosen were:

1. Prepare for a new job or career (198 responses, 47%)
2. Discover/develop career interests/plans/goals (197 responses, 47%)
3. Personal development (185 responses, 44%)

Program Satisifaction. Almost all students reported that they are satisfied with the program and services offered by the Logistics Program. An overwhelming percentage of survey respondents (92%) are "satisfied" or "very satisfied" with the education and training

received through the logistics program. Six percent (6%) are "neither satisfied nor dissatisfied" and three percent (3%) are "dissatisfied" or "very dissatisfied."

The various support services were considered "Helpful" or "Extremely Helpful" by a majority -- 76% to 89% -- of respondents (*Figure 6*). Support from the Career Guidance Counselor Assistants was seen as helpful by the largest percentage of students (89%), followed by Academic Advising with Instructors (87%) and Online Coaching via Études (83%).

Quotes From Program Participants

Got a good job due to the logistics program. Very grateful.

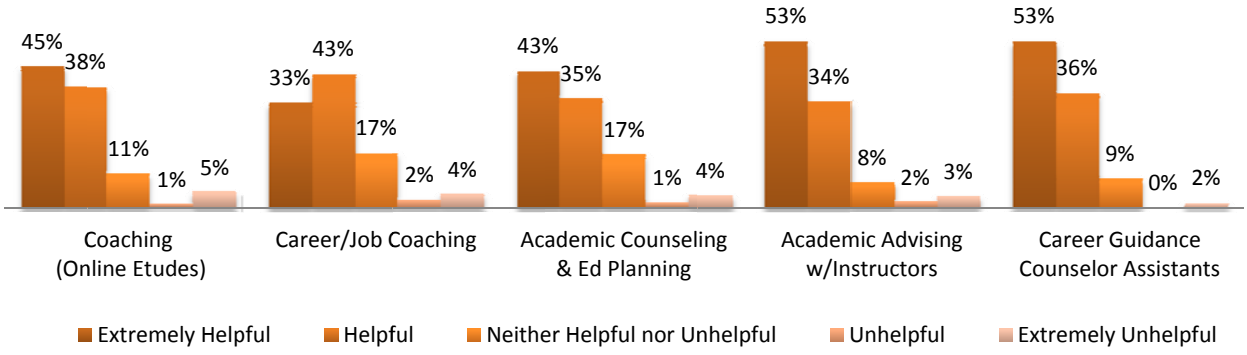
Loved the logistics leadership program - it gave me more confidence to work as a leader and not just as an employee.

The support staff has been great in helping with my work and answering my questions.

The coaching really opened up my eyes into looking to different types of studying [to] improve time and grades.

The support services have motivated me to continue with education.

Figure 6. Helpfulness of Support Services (Percentage of Students)



Suggestions for Improvement. Students were asked to comment on aspects of the program that they would like to see improved. The responses to this question were varied, but some themes did emerge. Of the suggestions that were made regarding the "one thing" that could improve the logistics class or support services, the most common suggestions were for more:

- Practical experience and hands-on experience
- Tours of relevant industries
- Guest speakers with real world experience in logistics

Interviews with Partners

Key partner interviews were conducted with personnel from an AJCC (Community Career Development, Inc.), the Los Angeles County Office of Education (LACOE), and an employer (UPS). The partner interviews were primarily focused on how the partnership began, how it evolved over the years, and issues around sustainability.

The general theme from the interviews was that the collaboration between colleges and external partners is critical for the success of the program and the participants, and that the benefits of the partnership go in both directions. Recruitment and subsequent enrollment of students is a major role for both the AJCC and LACOE, and both these organization provide additional wrap around services such as case management, coaching, counseling, and job placement services. LACOE additionally provides life enrichment classes at ELAC to connect with their students on a weekly basis and also offers a free 8-week GED course for students who need it.

As a major employer in the region, UPS is involved in multiple ways as well. They provide employment opportunities for logistics students but also provide input into the curriculum by keeping ELAC informed of workforce needs. UPS provides ELAC with training manuals, logistics-expert guest lecturers, and hosts students on tours of UPS operations. Furthermore, ELAC and UPS have jointly hosted an annual Safety Conference for the past five years.

ELAC's collaboration with all three major partners have grown and evolved over the years and have already proven their success and sustainability. Both the AJCC and UPS partnerships preceded the TAACCCT grant and will continue beyond the life of this grant. The AJCC has been partnering with the Logistics program at ELAC since 2005, while the partnership with UPS began in 2008. LACOE has been partnering with ELAC since 2014.

The partnership with UPS started out with their involvement in an on-campus job fair to recruit potential employees. As they got to know each other, UPS saw value in ELAC's Logistics program in recruiting students for employment as well as for providing classes for UPS employees in need of upskilling. After partnering for about two years by providing guest speakers, a UPS employee was hired as one of the instructors for the Logistics program. This instructor also helped to recruit students from high schools into the Logistics program. As a UPS employee, this new instructor was involved in recruiting students from several high schools in the region into their entry-level positions at the company, and now also markets the Logistics program to high school teachers and graduating seniors knowing that the students who further their education through the Logistics program will make them more employable. The instructor is also involved in the teaching of dual enrollment Logistics courses at the high schools.

ELAC and the AJCC also have a reciprocal relationship which was further enhanced by this grant. The TAACCCT grant allowed ELAC to offer free classes to AJCC participants

such as the *Bridge to Logistics, Trade and Transportation Program (BLTT)*. The AJCC in turn paid for parking and provided coaches from the University of Southern California, School of Psychology for counseling support. This additional support is especially important because many participants who end up at the AJCC are underprepared for college and have life issues which present challenges to successful program completion and eventual job placement. ELAC also hosted entry-level boot camp classes with contextualized math and reading to prepare students for college classes. These BLTT courses and boot camps are critical to preparing these participants for college.

Both the AJCC and LACOE stressed the importance of the personal connections that they -- and ELAC staff at the Logistics program -- have with students and potential employers. Both highlighted that what makes the partnership succeed are the good working relationships between the partners involved and the dedicated and caring staff who are supporting and encouraging students. In particular, both partners singled out Elaine Shibata, the Logistics project director who is also the Chairperson the Computer Applications and Office Technologies (CAOT) department, as the key to the success of their partnership. According to the director of the AJCC "ELAC has been great. They are a pioneer. But it's really [Elaine]. She's a person who is always asking, "How do we make it work? How do we fix it?" LACOE expressed similar sentiments. Together, the major partners and ELAC help students get their foot in the door of the logistics industry.

Finally, one challenge that was mentioned was in getting more employers to be invested in the program. The program has a robust and active advisory board that meets annually, but lacks local employers, other than a strong presence by UPS.

Participant Impacts and Outcomes

The participant impacts and outcomes section includes the impact analysis comparing the TAACCCT-funded Logistics program against a comparison group, reporting of the nine student performance outcomes articulated in the *Solicitation for Grant Applications*, and additional findings from a student exit survey, as well as additional aggregate employment data from the Employment Development Department.

The following research questions guided the outcome evaluation:

1. Does the grant-funded Technology & Logistics program increase (a) course completion, (b) student attainment of certificates or degrees, and (c) employment outcomes?
2. How do Technology & Logistics program students fare compared to Automobile Technology program students?

Data Sources

Table 5. Description of Data Sources

Method	Description
ELAC Student Database	The Office of Institutional Effectiveness and Advancement at East Los Angeles College provided student-level data for Logistics program students and Automobile Technology students. The data included information on courses taken (e.g., term, course #, grade, credits earned), student demographics (e.g., gender, ethnicity, financial aid status), and degrees earned.
Logistics Program Student Data	The Logistics program staff collected data on their students not included in the ELAC student database. This included student-level data on cohort year and certificates earned.
Automobile Technology Student Data	The Automobile Technology program staff provided data on their students not included in the ELAC student database. This included student-level data on cohort year and degree and certificates earned.
Employment Development Department	The State of California Employment Development Department, Labor Market Information Division, provided aggregate employment and wage data on Logistics and Automobile Technology (comparison group) program participants. ELAC uploaded the social security numbers of both groups of students directly to EDD via a password-protected secure FTP site so the evaluator had no need to access SSNs. As extra security, the file that was uploaded was also password-protected.
Student Exit Survey	An online survey was developed and sent to all students who participated in the Logistics program at the end of the 2015/16 academic year. The focus of the survey was to follow-up with past students and gather information on their completion, employment status, and current wages, if any.
Exit Interview	A sample of students who responded to the Exit Survey and who agreed to participate in a follow-up call were randomly selected for an interview. The main focus of the interview was to hear first-hand from students whether they thought their education and training helped them get a job.

Impact Analyses

The impact analysis utilized a quasi-experimental design in which the participants in the TAACCCT-funded Logistics program were compared to students of the Automobile Technology (AutoTech) program. The AutoTech program, which is not TAACCCT-funded, was chosen because of its similarity in program structure. Both programs allow for students to build upon their skills and earn multiple skills certificates and Certificates of Achievement that lead up to an Associate Degree in their respective field. As shown in Table 6, these two programs consist of a similar number of degrees, certificates, and industry-valued certifications and both offer multiple skills certificates in the 9 to 17 unit range that can be completed within one year.

Table 6. Program Comparison of Degrees and Certifications in the Technology & Logistics and Automobile Technology.

Technology & Logistics Program	Automobile Technology Program
Associate Degree (60 units)	*Associate Degree* (64 units)
Certificate of Achievement: • Technology & Logistics (27 units)	*Certificates of Achievement:* • Automobile Technology (46 units) • Cooling Systems and Climate Control Specialist (15 units) • Drivetrain Specialist (15 units) • Engine Performance and Drivability (15 units)
Skills Certificates: • Leadership in Global Logistics Certification (9 units) • Logistics Material Handling Certification (11 units) • LOGISTICS Skills Certificate - Level 1 (11 units) • LOGISTICS Skills Certificate - Level 2 (17 units)	*Skills Certificates:* • Automotive Customer Service Management (11 units) • Undercar Specialist (15 units)
Nationally Recognized Certifications: • Certified Logistics Associate (CLA) • Certified Logistics Technician (CLT)	*Nationally Recognized Certifications*: • ASE Brake • ASE Suspension and Steering • Mobile Air Conditioning Society License

Matching Methodology

In order to estimate the impact of enrollment in the Logistics program as compared to the AutoTech program, a quasi-experimental design was used that matched Logistics program students to similar AutoTech students. The following variables were used to match Logistics and AutoTech students: age group (under 18, 18-21, 22-25, 26-30, 31-35, 36-40, 41-50, 50+), ethnicity (African American, Asian/Pacific Islander, Caucasian, Hispanic/Latino, Native American, Unknown/multi-ethnic), education level (not a high school graduate, high school graduate, associate's degree, bachelor's degree), educational goal attainment

(unknown, general education, college preparation, transfer to a four year, career/workforce), and receipt of financial aid.

In order to match students, each Logistics student was matched to the nearest AutoTech student based on the above-mentioned variables ("one-to-one matching"). The "closest" AutoTech student was based on the mahalanobis distance metric. An AutoTech student was allowed to be a match for multiple Logistics students if that AutoTech student was the closest match for multiple Logistics students ("matching with replacement"). Because the matching consisted of matching Logistics students to AutoTech students (and not the other way around), the estimated impact is the "average treatment on the treated." In order to conduct the matching analysis, the "teffects" command in Stata was used.

Findings

Two outcome measures were assessed to determine the impact of enrollment in the Logistics program: "Degree Completion" and "Course Completion". Degree completion indicates whether the student received any of the certificates or degree in their respective fields listed in *Table 6* above. Course completion indicates that the student completed a sequence of courses or completed specific higher-level courses in the pathway. More specifically, for the Logistics program, a student was considered a "completer" if s/he passed, with at least a C or better, Logistics 104 and/or 105 -- the two courses that lead to national certifications. Completing a sequence of courses was not necessary if participants tested into higher-level logistics courses based on past work experience. For the AutoTech program, a student was considered a pathway completer if they successfully completed AutoTech courses 401, 501, and/or 701 -- three courses that specifically prepare students for various industry-valued certifications.

Course Completion. When using the "Course Completion" outcome variable, the **Logistics program students were more likely to complete the pathway** -- 51.1% for Logistics students, and 25.5% for observationally similar AutoTech students. This difference is statistically significant, with a z-statistic of 5.08 and a p-value of 0.001.

Degree Completion. When using the "Degree Completion" outcome variable, the **Logistics program students were more likely to receive a certificate or degree** in their respective field -- 37.1% for Logistics students, and 12.2% for AutoTech students. This difference is also statistically significant, with a z-statistic of 6.01 and a p-value of 0.001.

Employment and Wage Data

Obtaining employment and wage data for Logistics and AutoTech program participants posed a significant challenge. The Employment Development Department (EDD) was paid to extract data on program participants based on SSNs that ELAC provided. However, the EDD would only provide a standard output report with aggregate information (not student-level) which created challenges to reporting on certain required employment outcomes.

Despite WestEd's attempt to obtain means and standard deviations based on frequency weights of each student in the matched group -- which would have allowed for the data to be included in the impact analysis in the previous section -- EDD was not able to customize a report based on these specifications.

Regardless, ELAC uploaded the SSNs of program participants to EDD's secure FTP site and EDD matched the SSNs to their database. The aggregate report included the percent employed, mean and median wages, and average weekly wage. Based on this information, **EDD data indicate that a larger percentage of AutoTech students are employed (63.7% vs. 58.8%), although Logistics students are earning, on average, $1,854 per quarter more than AutoTech students** (*Table 7*). These findings need to be interpreted with caution as they did not take into account baseline differences in student characteristics or whether or not the student completed their respective programs.

Table 7. Comparison of Employment and Wage Data

EDD Outcomes	Technology & Logistics	Automobile Technology
Percent Employed	58.8%	63.7%
Median Quarterly Wage	$6,540	$4,832
Mean Quarterly Wage	$7,512	$5,658
Average Weekly Wage	$343	$277

The "Nine" Student Performance Outcomes

Table 8. Student Performance Outcomes

Student Outcomes	
1. Unique Participants Served	504
2. Total Number Who Completed a TAACCCT-Funded Program	249
2a. Total Number of Grant-Funded Program of Study Completers Who Are Incumbent Workers	106
3. Total Number Still Retained in Their Program	11
4. Total Number Still Retained in Other Programs (not grant funded)	40
5. Total Number of Credit Hours Completed	5,294
5a. Total Number of Participants Completing Credit Hours	342
6. Total Number of Earned Credentials	506
6a. Total Number of Participants Earning Certificates (Less Than One Year)	195
6b. Total Number of Participants Earning Certificates (More Than One Year)	6
6c. Total Number of Participants Earning Degrees	11
7. Total Number Pursuing Further Education After Completion of Program	30
8. Total Number Employed After Completion of Program (Unemployed at Start)	57
9. Total Number Retained in Employment After Completion of Program	109*
10. Total Number of Those Employed at Enrollment Who Received a Wage Increase Post-Enrollment	**

**Does not includes cohort 3 employment retention since most current EDD data did not allow for tracking beyond one quarter. ** Unable to calculate number of students receiving wage increase due to only having access to aggregate data from the EDD.*

Program Completion and Retention

- Forty-nine percent (49%) of Logistics program participants completed the program. Of the 51% (n=255) who did not complete the program, 11 students are still enrolled as of Spring 2016 and 40 students are enrolled in other programs.

Further Education

- Of the 249 students who completed the program, 30 students were still enrolled at ELAC in courses other than logistics after completion.

Employment, Job Retention, and Wages

- Of the 135 students who were unemployed at enrollment and completed the program 42% (n=57) were employed the quarter after completion. An additional eight (8) more students found jobs within the following two quarters.
- Of the 106 students who were employed at enrollment and completed the program 75% (n=79) were employed the quarter after completion.
- Of the 136 completers (both employed and unemployed at start) who were employed after program completion, 80% (n=109) were retained in employment for two subsequent quarters. However, this number should actually be higher due to the lack of employment data beyond one quarter for cohort 3 participants since the most current EDD data did not allow for tracking beyond one quarter. If we focus on just the cohort 1 and cohort 2 participants, for whom we can track employment beyond one quarter, the percent of students retained in employment goes up to 86%.

As expected, the average weekly wages were lower for completers who were unemployed at program enrollment compared to completers who were employed at program enrollment. Despite this difference, data from three consecutive quarters show that wages increase per quarter (Table 9).

Table 9. Average Weekly Wages after Program Completion

	Q1	Q2	Q3	Percent Change Q1 to Q3
Unemployed at Start	$179	$201	$247	38%
Employed at Start	$442	$464	$484	10%

Exit Survey

An attempt was made to follow-up with students via an online survey to capture similar information from an additional data source. An incentive of entry into a raffle for a $100 gift card was offered to provide extra motivation for past and current Logistics program students to respond. This resulted in a 15.7% response rate (*Table 10*). The low response rate was expected due to the length of time that has passed since the students completed or

left the program and uncertainty of the validity of email addresses on file. Although 46 email addresses were clearly undeliverable, there could have been more that were no longer in use.

Table 10. Response Rate of Exit Survey Participants

	Number/Rate
Number of Students in Cohort	504
Number of Undeliverable Email Addresses	46
Number of Respondents	72
Response Rate	15.7%

Of the 72 survey respondents, 72% (n=52) were program completers and 68% (n=49) earned a certificate or degree. **A majority (70%) currently have either a part-time or full-time job. Out of this pool of respondents, there are now 13 more students with jobs -- a third more -- than at the start of the program** (*Table 11*). Furthermore, of the 29% (n= 21) who are currently unemployed, half of them (n=11) are still taking classes.

Table 11. Employment Status of Survey Participants

	Number of Students (Percent)	
	Program Start (Baseline)	Current
Unemployed	34 (47.2%)	21 (29.2%)
Employed Part-Time	13 (18.1%)	15 (20.8%)
Employed Full-Time	25 (34.7%)	36 (50.0%)
Total	72 (100%)	72 (100%)

We need resources for employment after completion of certificate or AS
Most jobs in Logistics fields ask if you've had forklift training/experience. I think it would be beneficial if the Logistics classes incorporated some forklift training other than a explanation of forklifts only. Five certificates and a degree in Logistics aren't enough qualifications for some employers if you apply without forklift experience.

Conclusion

During the four grant years, ELAC's Technology and Logistics program was further enhanced by the addition of the following program components:

- New 3-unit course in *Leadership in Logistics*
- Hybrid, online versions of three courses
- Enhanced courses with various simulated logistics management software
- New 9-unit *Leadership in Global Logistics* skills certificate

- Associate of Science degree in Technology & Logistics was finalized

With the addition of the new and enhanced program components and various student support services in place, the evaluation indicates that program participants were more successful on three out of the four main student performance outcome measures when compared against statistically matched students in the Automobile Technology (AutoTech) program. Logistics program students were more likely to complete their pathway and were also more likely to receive a certificate or degree in their respective field. Employment and wage data showed that Logistics program students are earning, on average, $1,854 per quarter more than AutoTech students, although a larger percentage of AutoTech students are employed (64% vs. 59%).

With 49% of program participants completing the program, the program is deemed a success when compared to the college-wide completion rate of 30%[4]. Furthermore, 42% of program completers who were unemployed at enrollment were employed after completion.

Two important themes emerged during interviews with key partners regarding their successful collaboration. One was the importance of a reciprocal relationship in sustaining a partnership in which both parties contribute and the benefits of the partnership go in both directions. The other was the importance of a strong and positive working relationship with people who genuinely care about their students. Both are in existence between ELAC and its three major partners.

Students also provided positive feedback. Almost all students (92%) reported that they were "satisfied" or "very satisfied" with the education, training, and services received from the Logistics program, and the various support services were considered "helpful" or "extremely helpful" by a majority of survey respondents (76% to 89%). As several students noted:

"Without a doubt, the CLA and CLT [certifications] along with the Technology and Logistics [certificates], I would not be working at the job I am currently in."

"After being out of school for almost 35 years, that I was able to came back, apply myself, earn certificates, and now graduate with my AA degree in logistics."

"I love that they have this type of program, loved every class. It helped me in my career."

[4] East Los Angeles College Facts in Brief. Retrieved September 25, 2016 from https://www.elac.edu/facultyStaff/oie/docs/Fall%202015%20Facts%20in%20Brief.pdf

Appendix A
Logistics Program Student Survey

You are invited to share feedback about your experiences with the Technology and Logistics Program at East Los Angeles College, as well as your education and career plans. Your responses will provide program leaders with insights about participating students and the strengths and weaknesses of the program.

YOUR INPUT IS EXTREMELY IMPORTANT TO US.

Please advise your instructor if you have already taken this survey in another logistics class.

This survey should take about 10 minutes.

1. Name

First Name

Last Name

2. Please enter your 9-digit student ID*.

Student ID #

* We respect your privacy and your individual responses will NOT be shared with your instructors. Your name and student ID will be used for research-related purposes only, and your responses will be stripped of any identifying information.

Thank you in advance for taking the time to complete the survey.

Education and Career Plans

3. Which logistics course(s) are you currently enrolled in? (Mark all that apply)

- [ ] LOGISTICS 101 Introduction to Logistics in the Nontraditional Office
- [ ] LOGISTICS 102 Business Terminology for Logistics
- [ ] LOGISTICS 103 Records Management for Logistics
- [ ] LOGISTICS 104 Logistics: Cornerstone Essentials
- [ ] LOGISTICS 105 Green Logistics and GIS Technology
- [ ] LOGISTICS 106 Leadership in Logistics

4. Are you planning to take any other logistics course(s) in the future? (Mark all that apply)

- [ ] No, I do not plan to take any more logistics courses.
- [ ] LOGISTICS 101 Introduction to Logistics in the Nontraditional Office
- [ ] LOGISTICS 102 Business Terminology for Logistics
- [ ] LOGISTICS 103 Records Management for Logistics
- [ ] LOGISTICS 104 Logistics: Cornerstone Essentials
- [ ] LOGISTICS 105 Green Logistics and GIS Technology
- [ ] LOGISTICS 106 Leadership in Logistics

5. Are you planning to obtain any of the following certificates or degree? (Mark all that apply)

- [ ] No, currently I do not plan on obtaining any logistics-related certificate or degree.
- [ ] Logistics Material Handling Certification - Skills Certificate
- [ ] Technology & Logistics - Level 1 Skills Certificate
- [ ] Technology & Logistics - Level 2 Skills Certificate
- [ ] Technology & Logistics - Certificate of Achievement
- [ ] Technology & Logistics - AS Degree
- [ ] Certified Logistics Associate (CLA) national certification
- [ ] Certified Logistics Technician (CLT) national certification
- [ ] OSHA Certificate
- [ ] HazMat Certificate

6. Please select up to three (3) reasons (in order of importance) for taking courses and/or obtaining certificates/degree in logistics.

	# 1	# 2	# 3
Discover/develop career interests/plans/goals	○	○	○
Personal development	○	○	○
Obtain a two-year vocational degree/certificate	○	○	○
Transfer (with or without a degree/certificate)	○	○	○
Learn skills to allow me to stay in current job	○	○	○
Advance in current job/career	○	○	○
Prepare for a new job/career	○	○	○
Support my potential for a salary increase	○	○	○
Maintain certificate or license	○	○	○
Other	○	○	○

Other (please specify)

7. Are you planning to pursue a career that involves technology and logistics* skills?

○ Yes

○ No

* People working in logistics are responsible for computerized tracking, monitoring, storing, and distributing goods. This can include local or global transportation, storage and distribution, forecasting, planning, purchasing, inventory control, manufacturing, and expediting of products and services.

Program Satisfaction

8. How helpful to you were the following support services?
(Note: If you did not utilize the support service, please mark "N/A")

	N/A	Extremely Helpful	Helpful	Neither Helpful nor Unhelpful	Unhelpful	Extremely Unhelpful
Coaching (Online ETUDES)	○	○	○	○	○	○
Career/Job Coaching	○	○	○	○	○	○
Academic Counseling & Education Planning with Counselor	○	○	○	○	○	○
Academic Advising with Instructors	○	○	○	○	○	○

9. How helpful to you were the Career Guidance Counselor Assistants?
(Note: If you did not utilize CGCA's, please mark "N/A")

	N/A	Extremely Helpful	Helpful	Neither Helpful nor Unhelpful	Unhelpful	Extremely Unhelpful
Career Guidance Counselor Assistants	○	○	○	○	○	○

10. Overall, how satisfied are you with the education and training you received through the Logistics Program?

- ○ Very Satisfied
- ○ Satisfied
- ○ Neither Satisfied nor Dissatisfied
- ○ Dissatisfied
- ○ Very Dissatisfied

Your input on the following two questions is very important for program improvement. Please take the time to provide feedback. Thank you!

11. If you could improve one thing about your logistics class(es) and/or the support services, what would it be?

12. What has been the most rewarding experience in your classes or with the support services provided to you?