

Florida Advanced Technological Education Center (FLATE) Evaluation Report
For Year Ending December 31, 2013

Executive Summary

This report examines and evaluates organizational performance in all key areas as self-identified by FLATE goals and objectives, based on FLATE's environment and award contract, as described in Part I. This evaluation is an integral element of FLATE's Evaluation Plan. Please refer to http://www.fl-ate.org/about_us/evaluation.html, or to the annual evaluation report submitted in 2010 for a full description of that plan. Fundamentally, the evaluation plan serves two primary purposes. First, to collect evaluation data to measure the positive impact on goals of the National Science Foundation (NSF) Advanced Technological Education (ATE) Program including science, technology, engineering and mathematics (STEM) education and workforce impact, as well as the technical skills for STEM technicians and educators. Second, to collect data which satisfy FLATE's industry partners and stakeholders as to FLATE's performance and success. The FLATE evaluation plan and results assures stakeholders that FLATE operates in a manner that is consistent with industry-recognized best business management practices as expressed by the Sterling Criteria for Performance Excellence.

This 26 page evaluation report is organized in three parts. Part I (page 2) is centered on FLATE's operational goals with a section that includes other elements of performance in key areas. Part II (page 5) includes effectiveness results measures relating, in four sections, to the four overall organizational effectiveness strategies: Sustainability, Curriculum Development and Reform, Outreach and Recruitment, and Professional Development, which speak directly to NSF's expectations for FLATE. Part III (page 23) includes recommendations for improvement based on this evaluation.

Key strengths, opportunities for improvement, and recommendations are summarized here:

Strengths:

- In each area, Curriculum Development and Reform, Outreach and Recruitment, and Professional Development, evaluation evidence shows that FLATE continues to make

progress in addressing and implementing its strategies. The use of FLATE-developed curriculum at community and state colleges continues to expand. ET Program enrollment and completions continue to grow. Growth in professional development activities and hours has engaged educators and others to support and endorse manufacturing careers.

- As evidenced by the 2013 Stakeholder Survey, FLATE outreach activities and partnerships with industry and academia have increased awareness among stakeholders, further enhancing the climate conducive to promoting manufacturing workforce education, development, training, and career paths. Communication with, input from, and relationship building with Stakeholders, Staff, Volunteers, Customers, and Partners are embedded into the culture and overall operation of FLATE and the Leadership Team. This has resulted from some very successful activities and approaches, including best practice sharing, the FLATE awards program, partner engagement activities, and open communication channels through electronic and print media.
- FLATE leadership has a clear vision for the future of A.S. degree based technical education in Florida, and systematically seeks opportunities that align with sustainability options. The Leadership Team continues to identify, build, and strengthen partnerships in academia and industry.
- FLATE continues to leverage nationally focused events, such as Manufacturing Day 2013, as well as sharing and benchmarking opportunities, to build contacts and rapport for continued relationships and partnerships.

Opportunities for Improvement and Recommendations:

- Develop a Best FLATE Practice that addresses recruitment of female students into the ET degree programs within the Florida State College System.

I. FLATE Operational Goals

FLATE Goals as supported by their related Objectives and Effectiveness Measures are the

foundation of FLATE strategies for operational performance success. Tables 1, 2, 3 and 4 match curriculum development and reform, outreach, recruiting, and professional development goals to their corresponding effectiveness measures.

For additional details and descriptions, please refer to the following links for:

- Strategic Hierarchy: http://fl-ate.org/about_us/docs/FL%20ATE%20-%202012-2015%20Strategic%20Hierarchy%2011-16%20pc.pdf
- Effectiveness measures: http://fl-ate.org/about_us/docs/2012-15%20Effectiveness%20Measures%20Matrix%20mb%2011-19%20-12.pdf
- Objectives & Timelines: http://fl-ate.org/about_us/docs/Goals%20and%20Objectives%20TimelineV1%20110812.pdf

Goal: Effectiveness of Sustainability Efforts. "To ensure that FLATE’s mission is sustained."

- There are eight target objectives with six corresponding effectiveness measures (Table 1).

Table 1. Effectiveness of Sustainability Efforts			
Measure/Indicator		Measure/Indicator	
SE-1	HCC Brandon organizational chart with shared positions	SE-2	Sterling Evaluation score trend
SE-3	Stakeholder Survey trend chart scores for total % agree	SE-4	Receive Florida Sterling Challenge recognition
SE-5	Publish transportable models addressing NSF-ATE needs relationships	SE-6	Keep record and copy of submitted documents

Goal: Effectiveness of Curriculum Development and Reform Efforts. "To implement a statewide unified education system for manufacturing that positions manufacturing education as a convergent curriculum that optimizes technician preparation in manufacturing and its enabling technologies."

- There are 12 target objectives with 14 effectiveness measures (Table 2).

Table 2. Effectiveness of Curriculum Development & Reform Efforts			
Measure		Measure	
CE-1	Number of adopting institutions from South Florida	CE-2	Number of apprenticeships to ET degree
CE-3	Number of student earned ET degree related certifications	CE-4	Aligned ET degree skills to additional stackable credentials
CE-5	Aligned ET degree skills to 2012 MSSC** standards	CE-6	Aligned ET degree skills to international endorsed credential
CE-7	Aligned skills to another state's same major manufacturer	CE-8	National manufacturer satisfaction survey
CE-9	Number of tools developed related to outreach and enrollment	CE-10	Populate curriculum repository with interface to ATE central
CE-11	Identified common cross cluster technical skills	CE-12	Number of users of integrated ET content
CE-13	Number of ET related high school and PSAV* programs	CE-14	Number of articulations
*PSAV=Post-Secondary Adult Vocational School **MSSC=Manufacturing Skills Standards Council			

Goal: Effectiveness of Outreach and Recruitment Efforts. "To provide an effective outreach platform for Florida's high school, community college, industry, and legislature to access information related to the requirements for, and impact of manufacturing education."

- There are five target objectives with six corresponding effectiveness measures (Table 3).

Table 3. Effectiveness of Outreach & Recruitment Efforts			
Measure		Measure	
OE-1	Number of student contacts and enrollments	OE-2	Published STEM recruitment program
OE-3	Number of outreach events and partnerships	OE-4	Number of RMAs to develop regional manufacturing activities
OE-5	Launch FLATE's graduation Connection Program	OE-6	Number of website visits

Goal: Effectiveness of Professional Development Efforts. "To present professional development opportunities for technical faculty to develop, refine, or certify their knowledge base within manufacturing and/or its related enabling technologies and educational pedagogies."

- There are six target objectives with four effectiveness measures. (Table 4)

Table 4. Effectiveness of Professional Development Efforts			
Measure		Measure	
PDE-1	Publish Professional Development transfer best practice	PDE-2	Professional development hours trend chart
PDE-3	Report number of people who have taken and passed MSSC tests	PDE-4	Report the number of teachers supported

II. Operational Performance Results

Section A. Effectiveness of Sustainability Efforts

Table 1, describing Effectiveness Measures of FLATE Sustainability Efforts, is repeated here for clarity. Effectiveness measures SE-1 and SE-6 will not be reported here as they are administrative indicators and this report is focused on measures of effective performance.

Table 1. Effectiveness of Sustainability Efforts			
Measure/Indicator		Measure/Indicator	
SE-1	HCC Brandon organizational chart with shared positions	SE-2	Sterling Evaluation score trend
SE-3	Stakeholder Survey trend chart scores for total % agree	SE-4	Receive Florida Sterling Challenge recognition
SE-5	Publish transportable models addressing NSF-ATE needs relationships	SE-6	Keep record and copy of submitted documents

Table A-1, below, addresses Effectiveness Measure SE-2. The table shows a continued favorable trend at high levels. The data show a favorable increase in overall scores in 2012, the third time which the Florida Sterling evaluation has been conducted. The next assessment based on the Sterling Criteria model will be conducted in 2014.

Table A-1 FLATE Sterling Evaluation Score Trend					
	Category		2008	2010	2012
1	Leadership		42	56	63
2	Strategic Planning		40	50	45
3	Customer Focus		40	40	50
4	Measurement, Analysis, & Knowledge Management		25	30	40
5	Workforce Focus		30	30	30
6	Operations Focus		30	30	40
7	Results		126	126	144
	Total		333	362	412

Table A-2 addresses Effectiveness Measure SE-3. The stakeholder survey is conducted biannually. About 2420 valid survey response requests were emailed to FLATE stakeholders in 2013. There were 289 responses, a response rate of about 12%. Of the responses received, 31.1% were K-12 Educators/Administrators, 39.4% Post-Secondary Educators/Administrators, 18.0% Business/Industry representatives, 4.2% Workforce and Economic Development Professionals, 1.0% represent Florida Department of Education and Government, and 2.8% includes Educational Suppliers and Vendors. Of the total, 29.6% of respondents were located in the State of Florida.

The comparison summary response data in Table A-2 reflect overall responses, not by individual demographic groups (i.e. K-12 Educators/Administrators, Post-Secondary Educators/Administrators, Business/Industry, Economic & Workforce Development, Florida Department of Education/Government, and Educational Suppliers & Vendors, Others). “Not Familiar” is a possible response that was not included in the 2009 survey. It was included in 2011 and 2013 to distinguish between clearly “not applicable” responses and potential opportunity to familiarize respondents with services and products that may actually be applicable.

Table A-2 FLATE Stakeholder Survey

Survey Statement #	% Strongly Agree			% Agree			% Disagree			% Strongly Disagree			% Not Applicable			% Not Familiar		
	These percentages below are of the total respondents who answered the question																	
	2009	2011	2013	2009	2011	2013	2009	2011	2013	2009	2011	2013	2009	2011	2013	2011	2013	
2. I have easy access to FLATE's staff and its products.	49	41	35	42	50	45	1	1	6	1	0	1	6	8	13	N/A	N/A	
3. FLATE staff have helped me whenever I requested it.	37	30	37	27	36	27	6	1	2	4	3	0	25	22	25	8	10	
4. Professional development initiatives provided by FLATE have assisted me in my work.	25	29	25	28	30	32	9	5	3	4	0	0	33	30	28	7	13	
5. Curriculum initiatives provided by FLATE have assisted me.	29	24	21	30	33	28	9	4	3	4	0	0	27	29	30	10	17	
6. Curriculum materials provided by FLATE have assisted me.	18	24	20	38	40	31	1	1	5	4	4	0	0	29	21	30	9	15
7. FLATE's "Made in Florida" outreach materials and/or activities have assisted me.	27	19	21	35	38	30	9	3	5	1	1	1	27	30	25	10	18	

The results are generally favorable. Some notes about the data include:

- The **SUM** of “% Strongly Disagree” and “% Disagree” responses has decreased since 2009 for all survey Statements 3, 4, 5, 6, and 7. Only Statement 2 has shown an increase in the aggregate “disagree” responses. The unfavorable down trend in Statement 2: “I have easy access to FLATE's staff and its products”, may reflect the several open-ended comments submitted relating to difficulty in accessing the *FLATE Focus* newsletter, and nearly half of all comments relating to the general need for increased exposure and awareness of FLATE activities, services, and products in many parts of the State.

- The **SUM** of “% Strongly Agree” and “% Agree” responses are up or about the same for all Statements 3, 4, and 5 since the 2009 and 2011 surveys. Statements 2, 6, and 7 are down in the aggregate “agree” responses. The reasons for the unfavorable trend in Statement 6 responses may be substantiated by about 10% of all comments indicating desire for some aspect of curriculum development or implementation which doesn’t exist, mostly referring to on-line curriculum for delivery of MSSC and other ET-related education. FLATE’s emphasis on professional development activities since the 2009 survey seem to have had a positive impact on stakeholders, as reflected in the increase in aggregate “agree” and the decrease in aggregate “disagree” responses to Statement 4 relating to professional development.
- About 13% to 16% of respondents who indicated they were familiar with FLATE, did not respond to one or more specific statements 2 through 7 by reason of unfamiliarity. This proportion is only very slightly higher than that in the 2011 survey. Twelve people (4.0% of all respondents) acknowledged they are not familiar with FLATE, exited the survey after providing demographic information, and subsequently did not respond to any of the seven survey Statements.
- Even in response to question 8 (What can FLATE improve?) and question 9 (What should FLATE add?), about one in six of all the comments were positive regarding FLATE’s activities, services, and products. By their words, most of these respondents show support for FLATE continuing on its present track.

Regarding Effectiveness Measure SE-4: Florida Sterling Challenge recognition has not yet been achieved. Addressing Effectiveness Measure SE-5, FLATE has published a number of Best Practice Guides to fulfill part of its NSF mission by sharing organizational learning and expertise through dissemination. To this end, since 2010 FATE has developed and distributed both electronically and in hard copy, a "**FLATE Best Practice Guide**" series beginning with publication of *Summer Robotics Camps*. The series has expanded with additional publications including *Tours to High Tech Industries*, *Strategic Communications*, *Building Strategic Partnerships*, and a *Project Highlights* booklet. The series was established based on the inquiries from various ATE centers and other organizations about best practice sharing, particularly in areas of structure and outreach related to camps, tours, newsletter, and strategic partnership

building strategies. FLATE’s response resulted in a compilation of best practices derived from experience with focus groups and stakeholder feedback.

Section B. Effectiveness of Curriculum Development Efforts

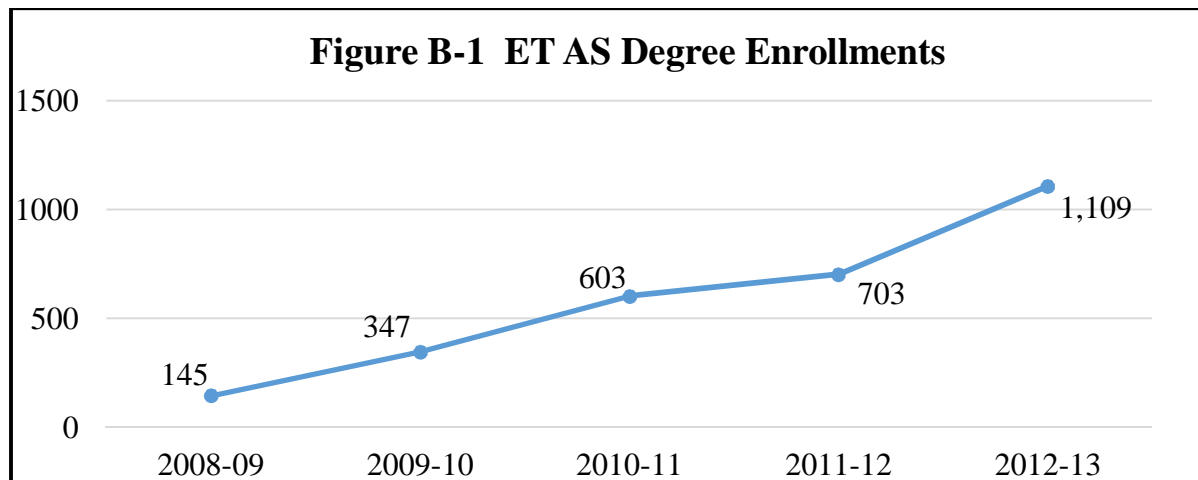
Table 2, describing Effectiveness Measures of Curriculum Development & Reform Efforts is repeated here for clarity.

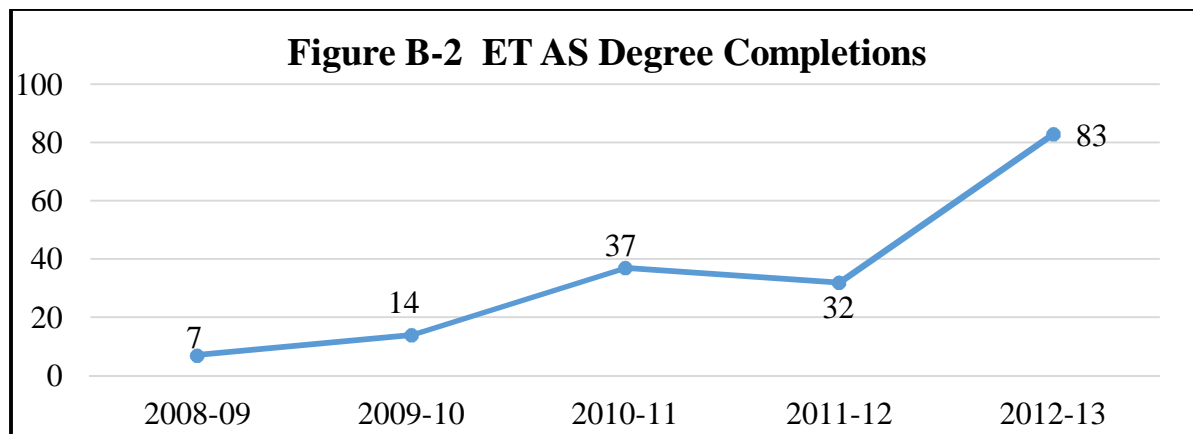
Table 2. Effectiveness of Curriculum Development & Reform Efforts			
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*PSAV=Post-Secondary Adult Vocational School **MSSC=Manufacturing Skills Standards Council			

This Table B-1, below, displays a favorable trend in Florida College adoptions and implementations of the FLATE-developed Engineering Technology (ET) AS degree program. The table names each of the adoptive colleges. There are 10 approved specializations associated with the ET degree, at least one at every adoptive college. Two were added in 2012-2013 academic year: Digital Manufacturing and Industrial Energy Efficiency Technology.

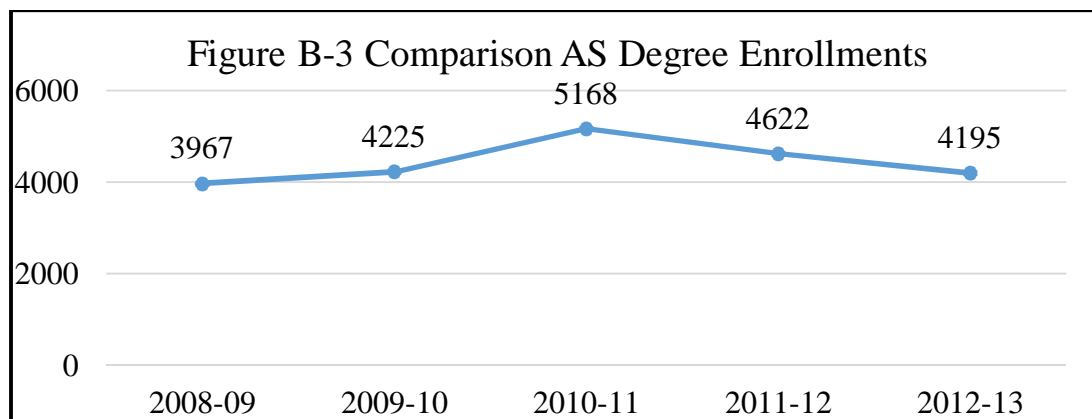
Table B-1 Academic Year – ET Degree Program Adoptions	
Academic Year	Number of Colleges
2007-2008	3
2008-2009	5
2009-2010	10
2010-2011	11
2011-2012	14*
13 Colleges Implementing ET Program as of 2013	
Eastern Florida State College (Cocoa)	St. Petersburg College (Clearwater)
College of Central Florida (Ocala)	Polk State College (Lakeland)
Hillsborough Community College (Tampa)	Florida Gateway College (Lake City)
Florida State College at Jacksonville	Pensacola State College
State College of Florida (Venice)	Tallahassee Community College
Northwest Florida State College (Niceville)	Broward College (Coconut Creek)
Gulf Coast State College (Panama City)	
*Note: Daytona State Colleges not yet implemented in 2013	

Figures B-1 and B-2, addressing Effectiveness Measure CE-1, display enrollment and completion data, respectively, for the AS ET degree program. Both of these figures immediately indicate favorable trends for the ET degree program.



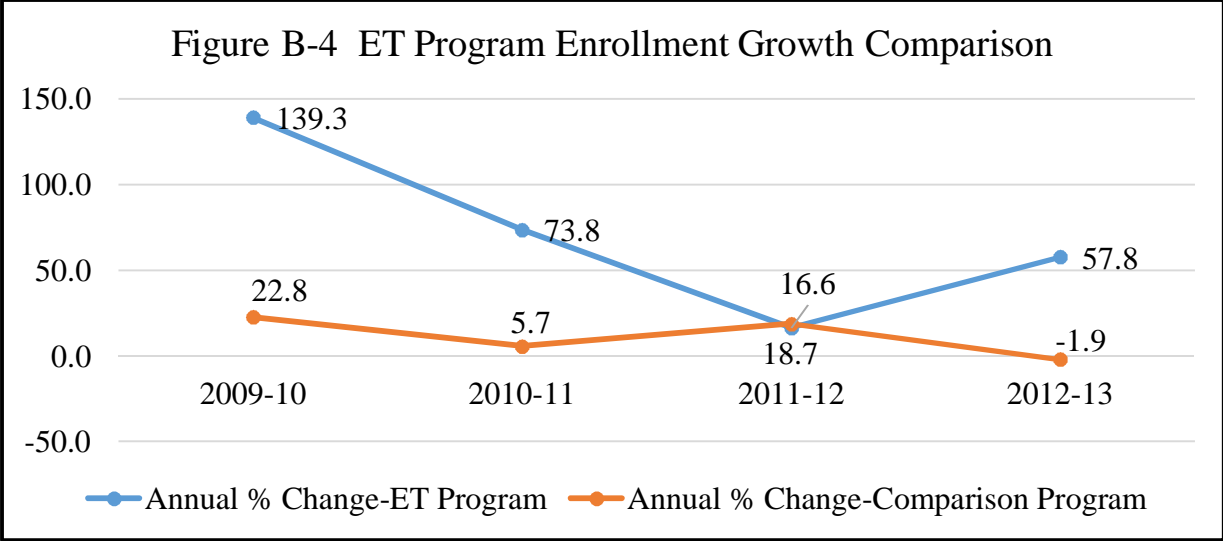


Especially noteworthy are the comparative enrollment data for other technology programs in Florida as shown in Figure B-3. The number of students enrolled in the ET degree program over the recorded period increased by almost 1,000 students. By comparison, the number of students in all the rest of the AS manufacturing related programs increased overall, since 2008-09, by less than 300 students. Figure B-3 also indicates an unfavorable down trend, beginning academic year 2010-2011, while the ET degree program enrollment shows a



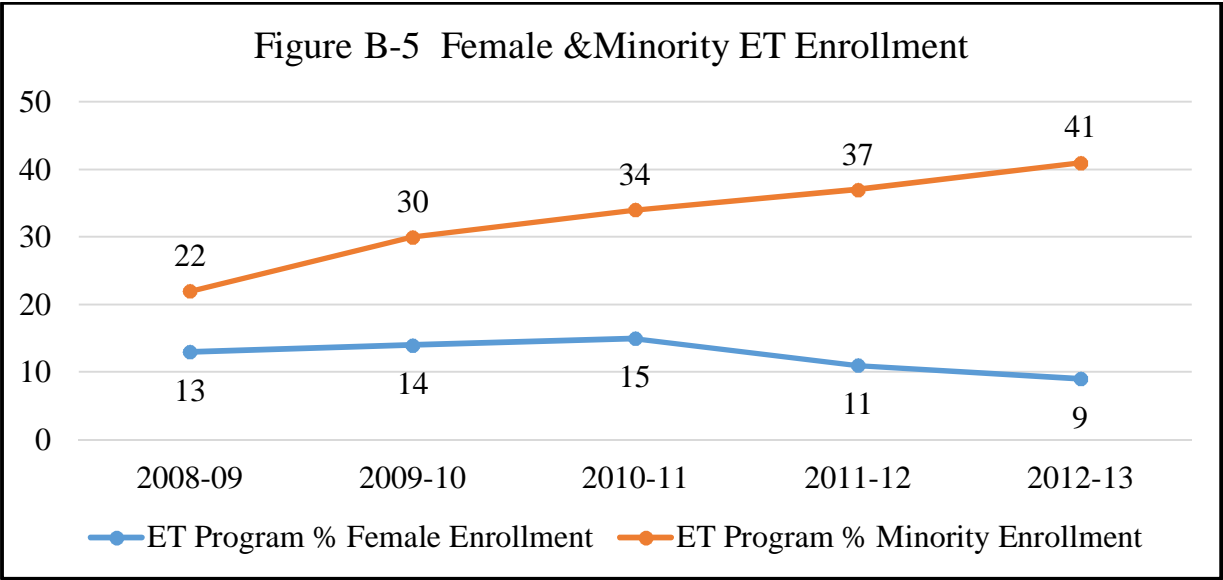
favorable up trend in the same period. Additionally, Figure B-4 provides another comparison of the ET degree program enrollment with an external similar program in Connecticut.

As can be seen by these data, the percent annual growth in enrollments in the Florida ET AS degree program has favorably out-paced the similar Connecticut technology and engineering AS degree programs. Although the 139.3% increase reported in 2009-10 is skewed by the fact that



the ET Degree program had a low starting enrollment number in its first, 2008-2009, academic year, the growth percentages are high for the ET degree except in the one year, 2011-12, when statistically equivalent to Connecticut numbers. If one accepts that Connecticut is recognized as a manufacturing state, the 2012-13 data point, the Connecticut negative 1.9 % when compared to Florida's positive 57.8 %, is a striking distinction.

Figure B-5 provides data on another aspect of ET degree program enrollment, diversity of the



program enrollees, particularly females and minorities. These data indicate a favorable trend in growth of the minority enrollee population in the ET degree program. The trend for female enrollees is not favorable and suggests an opportunity area for FLATE. Efforts in this area have begun with initial activities outlined in the report and data presented to the National Visiting Committee (NVC) in its 2014 meeting.

There are no data collected this period relative to Effective Measure CE-2. FLATE is now exploring the possibility of using Florida Education and Training Placement Information Program (FETPIP) trends to characterize employment impact.

The certificate plays an important role relates to AS degree education in Florida. Students use technical certificates as a stepping stone to technical employment either because they want to advance within the company from their current position or are looking for an entry position that has a skill set as a prerequisite. These students will then consider returning to an AS program to increase and expand their skills and marketability.

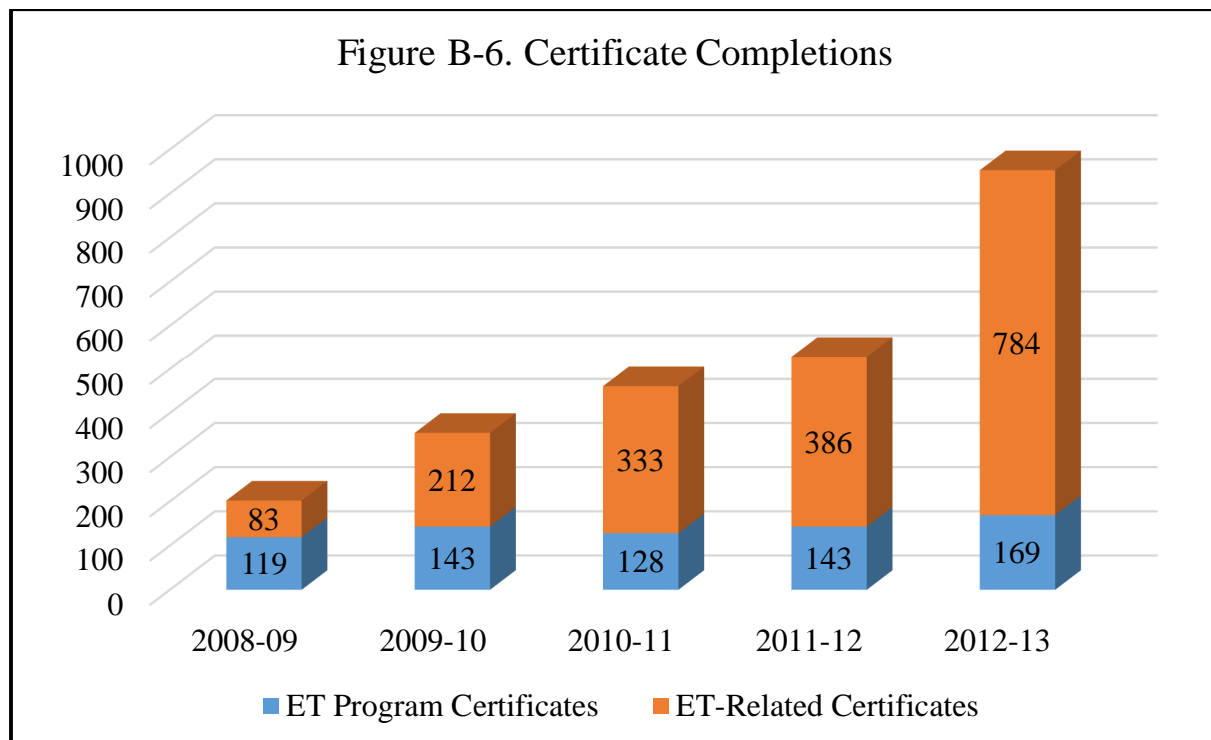


Figure B-6 provides data on student certificate activity and addresses Effectiveness Measure CE-3 by providing data on student ET degree certificate activity. This figure depicts a favorable trend in the number of students that earned ET and related certificates. These data indicate a significant increase in all students earning certificates over the last five years with the ET degree related certificates earned increasing but at a lower rate than the overall values.

There are no data for Effectiveness Measure CE-4 collected for this reporting period.

Table B-2 FLATE-Collected MSSC CPT* Test Results through Aug. 2013**				
Test Topic	Safety	Quality	Mfg. Process & Prod.	Maintenance Awareness
# of test takers	88	50	66	23
Number Passed	81	40	50	12
Pass Rate	92%	80%	75%	52%
*Manufacturing Skills Standards Council Certified Production Technician				
**FLATE sponsored 2011-13 Post Secondary Testing				

Table B-2 addresses Effectiveness Measure CE-5. Table B-2 data indicate high passing rates for the Safety and Quality examinations with good completion rate for the Manufacturing Process and Production examinations. The maintenance awareness test, the most demanding of the set also reflects the lowest passing rate. However, the number of students taking this test is statically lower than the individual numbers for the other tests. These data reflect the fact that fewer students have reached the point in their studies when the test could be taken. However, the data in Table B-2 also reflect precursors for curriculum effectiveness in preparing students for technical careers.

FLATE aligned the Engineering Technology (ET) Degree Curriculum frameworks, a State required and reviewed student standards document for the academic program, with the skill standards of the Manufacturing Skills Standards Council (MSSC) credential. This intense frameworks development process was needed to support the statewide articulation of the MSSC

Credential to the degree program for college course credit. In addition, FLATE validated the alignment results with Florida industry to ensure that the ET degree program meets industry workforce needs. The benefit from this effort is the fact that students that proceed through the ET degree will also complete the MSSC certification process. The combination of the industry recognized certification plus a state wide uniform technical degree represent an effective means to deliver the curriculum that provides the job marketability students seek.

Unfortunately, alignment development and verification does not ensure the competencies are taught or mastered in college classrooms. Faculty commonly uses standard text books and text book driven academic course syllabi to formulate classroom lessons. Although there is often much overlap, gaps do occur between the State Curriculum Frameworks and the academic course chosen by colleges to support the frameworks. Therefore, FLATE is well aware that skills needed for passing the MSSC certification tests may not be aligned to the academic courses (ET degree core courses). Thus, FLATE uses the ET Forum as an instrument to continuously adjust faculty expectations for these core courses.

Additionally, FLATE continually works within the Florida Education system as a liaison with the Florida Department of Education to support all Florida colleges offering or planning to offer the ET degree, to consolidate and minimize replication of courses in the ET degree at the adoption and implementation stage. Technician preparation and advanced manufacturing workforce readiness across the state of Florida is accomplished through work with technical educators to actively develop the student pipeline to manufacturing careers, identify and address MSSC gaps in curriculum, expand high school and post-secondary adult vocational articulations, and facilitate articulations to Bachelor of Science ET programs in Florida.

There are no data collected related to Effectiveness Measures CE-6, CE-7, CE-8 and CE-9 in this reporting period.

Effectiveness Measure CE-10 is addressed utilizing the following information. FLATE has populated the ATE Central curriculum repository. FLATE's process information regarding all

aspects of FLATE operations, and outreach enables communication, comparison, and sharing within all 43 ATE centers.

There are no data collected related to Effectiveness Measures CE-11, CE-12, CE-13 and CE-14 in this reporting period.

Section C. Effectiveness of Outreach and Recruitment Efforts

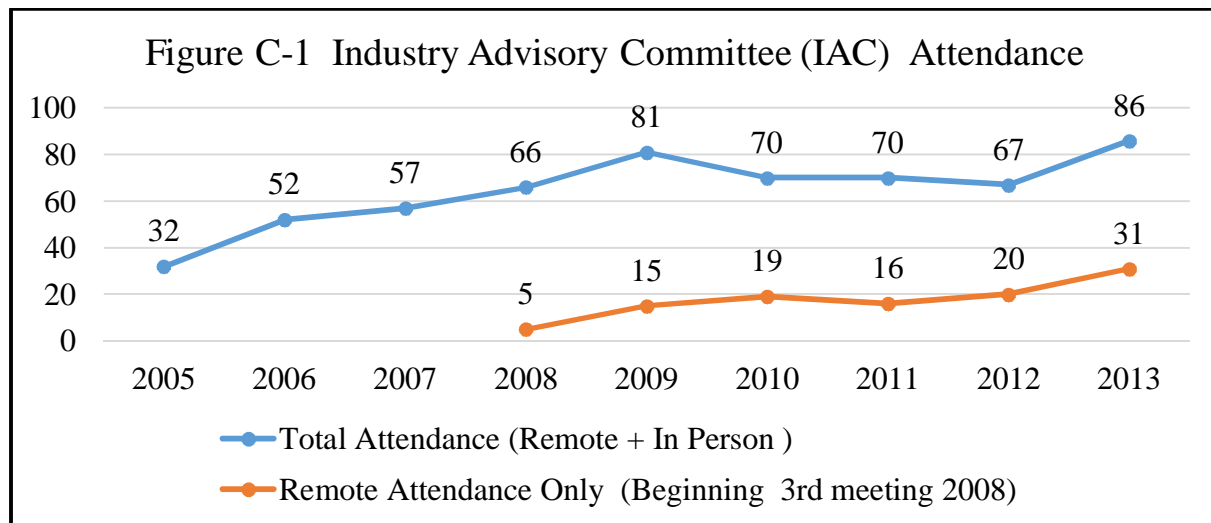
Table 3, describing Effectiveness of Outreach and Recruitment Efforts is repeated here for clarity. There are no data collected related to Effectiveness Measures OE-1 and OE-2.

Table 3. Effectiveness of Outreach & Recruitment Efforts			
Measure		Measure	
OE-1	Number of student contacts and enrollments	OE-2	Published STEM recruitment program
OE-3	Number of outreach events and partnerships	OE-4	Number of RMAs to develop regional manufacturing activities
OE-5	Launch FLATE’s graduation Connection Program	OE-6	Number of website visits

However, data were collected relative to Effectiveness Measures OE-3 and OE-4: In 2013, FLATE engaged 122 partners including manufacturers, industry professional associations, state and regional manufacturers associations, state colleges, school districts and schools, not-for-profit organizations, training equipment vendors, and other friends of manufacturing. Of these 122 partners, 11 are the state and regional manufacturers associations. Partner engagement included participation in Made-In-Florida tours, Manufacturing Day tours and activities, and sponsorships and other cash donations, hosting FLATE meetings and events, and general outreach.

In 2013, a total of 555 students took part in Made-In-Florida tours. In addition, FLATE organized, promoted, and executed a huge statewide initiative for Manufacturing Day tour events in partnership with Dream It! Do It! in October 2013. Activities on this day involved 23 counties, 2,307 students, 67 Florida Schools, 110 teachers, and 66 parents. There was participation by 225 employees from 71 Manufacturers and state colleges.

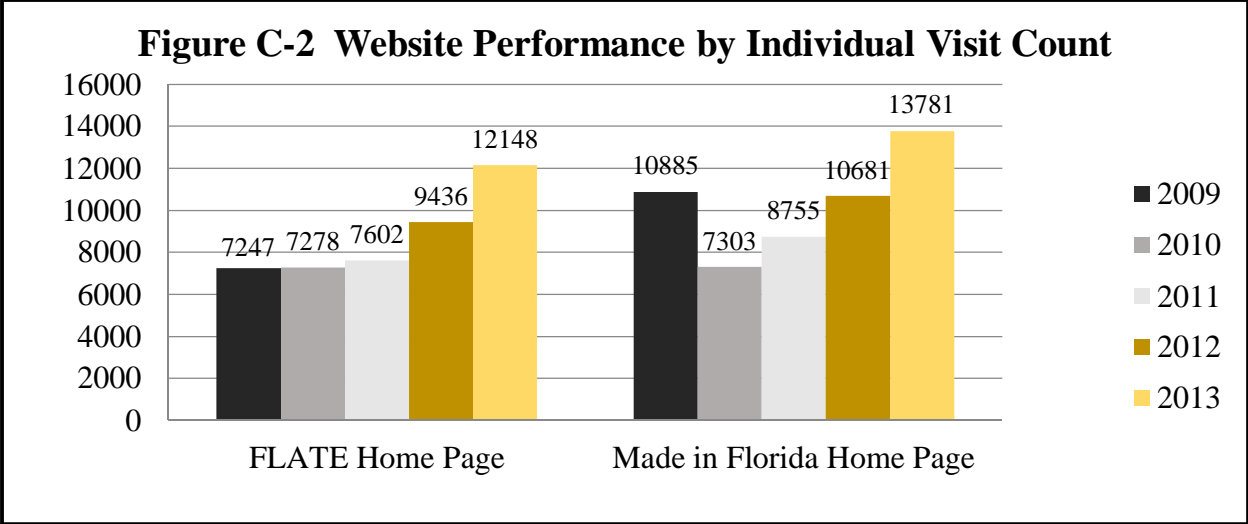
Figure C-1 also addresses Effectiveness Measures OE-3 and OE-4 by providing more detail to FLATE’s partnership activity. The figure reflects FLATE’s progress with its effort to increase the number of remote attendees to Industry Advisory Committee (IAC) meetings. The increase in these numbers is significant if one considers the challenges of having the IAC meeting itself at



locations rotating around the state. In each of these locations, the Internet access and onsite remote meeting capabilities are different, presenting an obstacle to overcome each time. In addition, the sound qualities of the meeting rooms plus various restriction on allowable audio and video transmissions from the facility also vary.

Addressing Effectiveness Measure OE-5: FLATE has begun development of the Graduation Connection Program to establish and maintain relationships with ET degree program alumni. The site is expected to be deployed in 2014. Additionally, FLATE has established an alumni contact list including 54 people for following up especially regarding how the ET AS degree has impacted employment activity and wages. Other graduate related efforts are under development that use LinkedIn® professional networking services, as well as FLATE-created Alumni reports and surveys.

Figures C-2, C-3, and C-4 address Effectiveness Measure OE-6. The data in Figure C-2



provide the summary view of the FLATE homepage and the Made-In-Florida home page performance. The data indicate both are trending favorably and growing in visit count.

Figure C-3 shows a performance comparison comprised of a long-term, well known NSF ATE center, EvaluATE. Inquiries about the 2012 EvaluATE data point at 795 visits indicate it was a special cause anomaly in June 2012 resulting in a higher monthly average. In any case, it is clear the site visit performance of FLATE's regional center website, is favorably higher than the EvaluATE center comparison overall. With both the FLATE Home Page and Made-In-Florida visit numbers on a steady rise, it suggests that FLATE is succeeding with its intent to "Impact Florida, Lead Nationally".

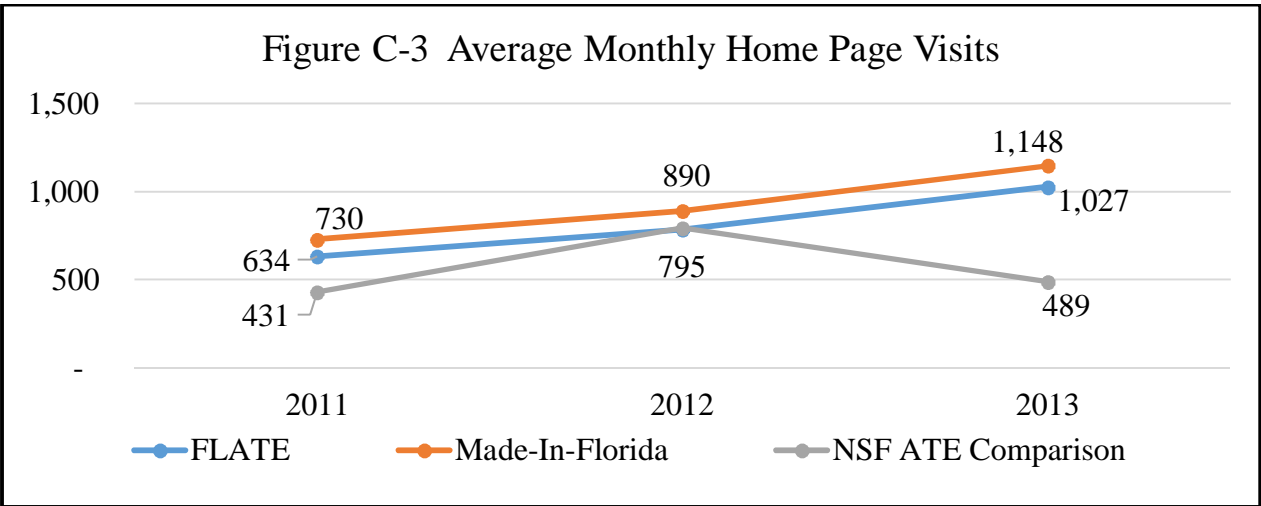
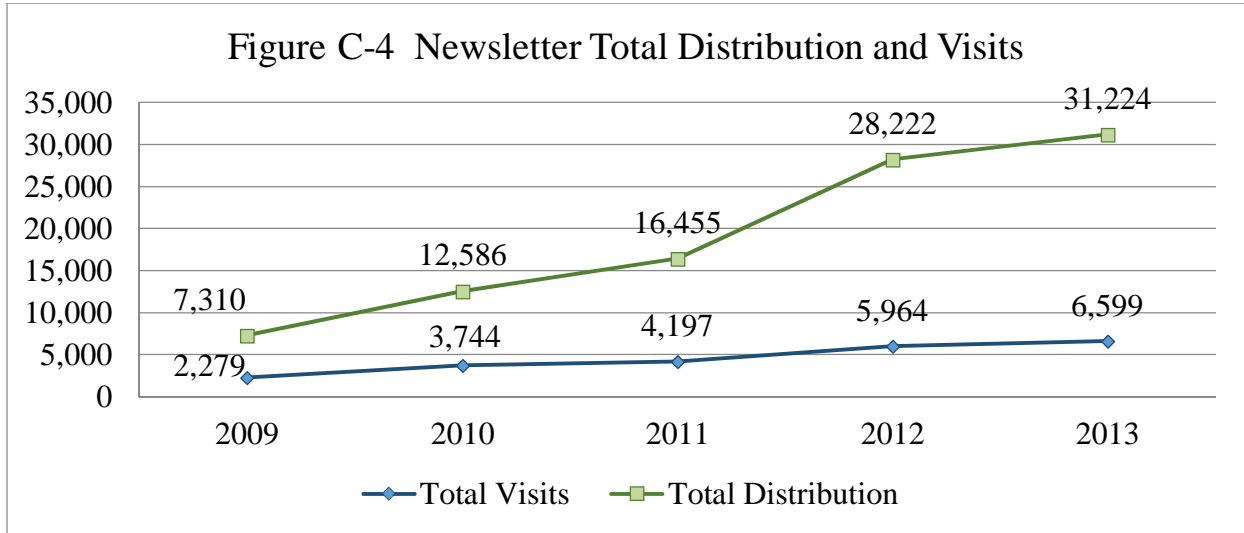


Figure C-4 pertains to the FLATE *FOCUS* newsletter. The total number of visits as well as



the total reader distribution continues to increase. The total number of visits has increased dramatically over the last five years with 7,310 readers expanded to 31,224 readers by the end of 2013. This increase is notable because the total distribution, although increasing is not advancing at the same rate. FLATE has experienced a 21.1% visit to distribution ratio in 2012, and 20.7% in 2013. These ratios compare favorably against the MATEC Center, which reported 15.9% and 16.4%, respectively, in 2012 and 2013. The favorable FLATE trends suggest that more recipients return to the newsletter and/or are passing it on to new readers not within the current distribution base.

Another indication of the quality of the FLATE *FOCUS* newsletter is the fact, FLATE received the APEX 2013 Award for Publication Excellence recognizing Best Practices in Print, Web & e-Publishing. The winning article was: “Robots Help Pave the Way for Future Women Engineers”. This article was part of a special FLATE *FOCUS* edition focused on attracting and retaining girls in STEM curriculum leading to college and careers in advanced manufacturing and related technologies which, in turn was triggered by FLATE's response to the opportunity developed from the data in Figure B-5 above.

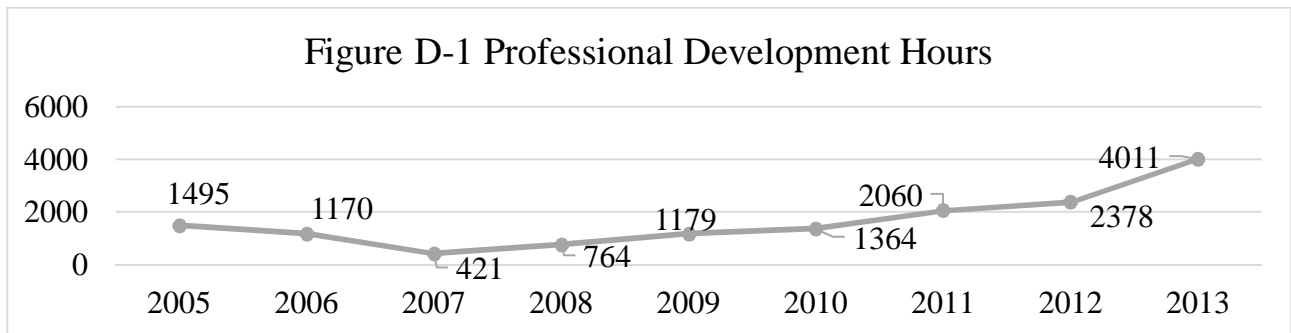
Section D. Effectiveness of Professional Development Efforts

Table 4, describing Effectiveness Measures of Professional Development Efforts is repeated here for clarity. A Best Practice Guide, addressing Effectiveness Measure PDE-1, to reflect FLATE's

Table 4. Effectiveness of Professional Development Efforts			
Measure		Measure	
PDE-1	Publish Professional Development transfer best practice	PDE-2	Professional development hours trend chart
PDE-3	Report number of people who have taken and passed MSSC tests	PDE-4	Report the number of teachers supported

Professional Development strategy is planned but not published. FLATE Professional Development for technical faculty and educators in STEM curriculum provides opportunities to develop, refine or certify their knowledge base within manufacturing and/or its related enabling technologies and educational pedagogies. Summer break Workshops are available to college faculty and K-12 teachers. Several professional development opportunities were offered in 2013 including the third annual FLATE Summer Institute, fourth annual FLATE Summer Camp for Teachers, and hands on workshops featuring BEST Robotics, Machining, Vacuum Technology, Pressure Sensors, Alternative Energy, and recruiting girls to STEM careers.

Figure D-1 addresses Effectiveness Measure PDE-2. This figure reflects data indicating a favorable trend and an increase in the number of hours of Professional Development conducted by FLATE over the last 5 years. The downward trend from 2005 through 2007 coincides with FLATE immediate efforts to build the ET degree and bring the small group of faculty committed



to this task up to speed with the degree, its frameworks, curriculum, and course structure. By 2008, the ET degree was recognized and supported by the Florida Department of Education and FLATE shifted its professional development activities to topics and skills that would support faculty and teachers in areas that also support the ET degree. The figure shows a continuous, linear increase in the number of professional development hours provided since 2007. Following development and implementation of the ET curriculum in 2007, FLATE's strategic plan guided its action plan to increase professional development activity. In 2013, there were 1,120 educators and 550 workforce, economic development, and manufacturing people participated in this professional development activity. Additionally, surveys of participants in the various workshops offered as professional development opportunities show favorable results, reflecting favorably on satisfaction and effectiveness, as self-assessed by participants.

Figure D-2 shows these average overall scores on a scale of 1 = poor to 5 = excellent for all surveyed workshops offered in 2013. As an example of the effectiveness of professional development activities, there were no scores by any participant on overall effectiveness lower than a 3=good in the spring ET Forum, and no scores lower than 4 = very good in the fall ET Forum. These scores were in response to statements about effectiveness of workshop format, timeliness of information, overall usefulness, and professional development value. With respect to professional development efforts that address technologies that support manufacturing in Florida, FLATE presented a BioTECH workshop in June of 2013. The participant self-assessment rating for that event was the highest, 4.9, for all programs presented in 2013.

A particularly effective, highly-rated professional development effort for teachers involved in high school technical programs that prepare students for direct entry in the ET AS degree program was also delivered in 2013. FLATE presented a special workshop at the Florida Association for Career and Technical Education (FACTE) Conference that focused on the characteristics of the MSSC-CPT certification. This whole-day workshop was attended by over 100 teachers from around the state and included a session conducted by the Florida Department of Education Director for Career and Technical Education (CTE) responsible for the manufacturing, ET, and related state frameworks.

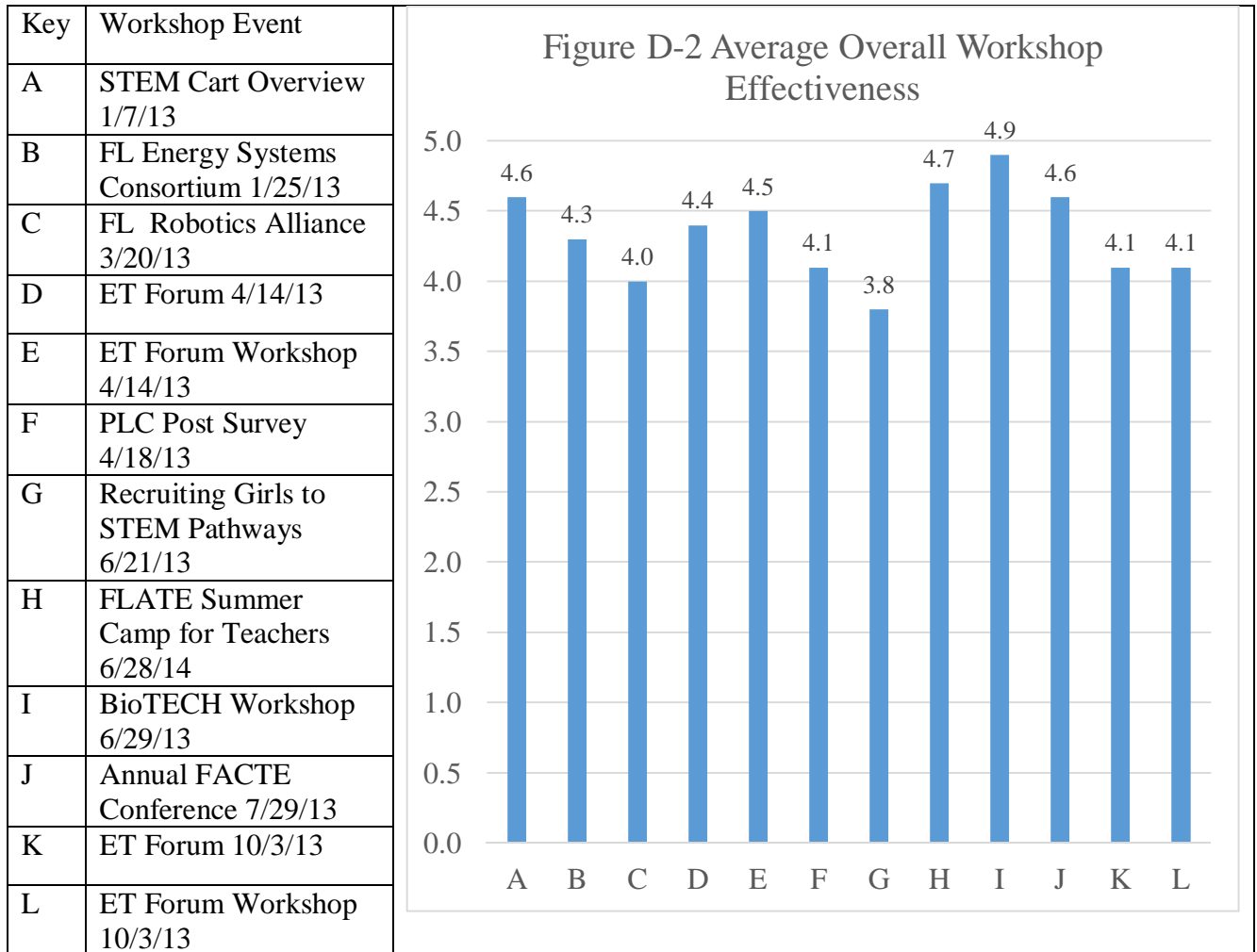
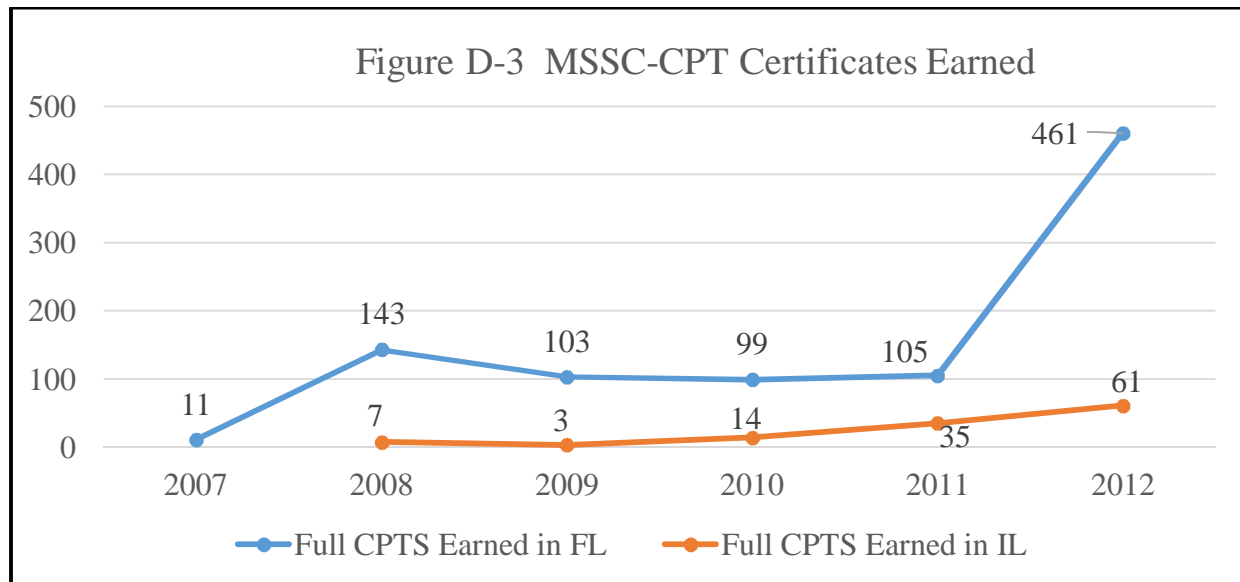


Figure D-3, below, addresses Effectiveness Measure PDE-3. The number of people that earn a full Manufacturing Skills Standards Council (MSSC) Certified Production Technician (CPT) certification in Florida reflect FLATE's effort to provide the professional development and the promotion of this nationally recognized industry certification. The figure indicates that after 2007 there is a substantial increase in the number CPTs earned in Florida. As with other effectiveness measures used by FLATE comparison data is provided when possible. For this comparison, the annual CPT awards in Illinois is provided. The comparison shows that more CPT credentials were earned in Florida than Illinois every year comparison data was available. The higher levels are good, but when one considers the fact that the GDP by state for manufacturing NAICS codes is more than double in Illinois than in Florida; Florida's numbers, which range from 4 to 10 times higher, are impressive.

Although there are other factors in Florida contributing to this growth in CPTs earned, FLATE had a significant impact by first integrating the CPT credential into the ET degree program curriculum. This implementation plus FLATE’s efforts at professional development have reinforced among school faculty the importance of the credential to the manufacturing workforce, in turn is reflected in the growth of the CPT credential in Florida. To address Effectiveness Measure PDE-4, is the data noted earlier, that 1,120 educators have been supported through participation in FLATE professional development activities.



III. Summary

FLATE continues its focus on mission sustainability and continuous improvement of activities and processes. A wide range of partnerships have been developed alongside a leadership and management system that is intent on listening to the voice of stakeholders for new opportunities and refinement of current approaches in every aspect of FLATE operations. The Leadership Team has a clear vision for the future, and systematically seeks opportunities that align with FLATE’s guiding principles and sustainability options. Continuous improvement is embedded in the culture of FLATE leadership and staff. This evaluation demonstrates the results, culture, and capacity to fulfill its mission and meet the needs of the National Science Foundation (NSF), its customers, and stakeholders. Performance results validate FLATE’s ability to gain the

confidence of its stakeholders. This confidence has been demonstrated in a number of ways, and corroborated by performance results in this report, such as ET degree program adoptions and ET Program enrollments and completions. FLATE continues to develop and implement its options and strategies for sustaining its mission and functions, and for institutionalizing key functions. Key strengths and opportunities for improvement are noted. The following comments summarize progress to date of the last reported areas of opportunity for improvement, and additional recommendations are made.

Previous Recommendations (still pending):

- Create a system for identifying key measures requiring comparatives, select appropriate comparatives, and effectively use key comparisons to set goals and improve organizational performance.

Progress: There is much progress in this area, as FLATE leadership and staff seek creative ways to judge FLATE results against other high-performing organizations and processes. In many cases, FLATE is sought out by others as a high-performance benchmark and a source for high-performing processes and approaches. As this is a continuing effort, this recommendation will be dropped in future reports unless a notable, specific comparison is necessary.

- The next three recommendations are the key recommendations coming from the 2011 Stakeholder Survey:

- Data should be collected and reported regarding industry perceptions pre- and post-student tour events.

Progress: This is accomplished. The 2013 Stakeholder Survey confirmed that there is a continuing need for outreach activity generally but that progress has been made. This item will be discontinued in future reports.

- Look into collecting data regarding the accomplishment of technical credentials and certifications in comparative programs.

Progress: FLATE effort in on this recommendation continues. However, FLATE has conducted and completed a nationwide collection of data that reflects on the MSSC-CPT credentials awarded in comparative programs. Information about other national certifications relative to the ET degree specializations is underway.

- Research whether past years data are available for those high school programs that were in existence but for which data were not collected (until 2011) and are newly added into this evaluation report.

Progress: Pending

- While ET Degree program enrollment and completion continue to grow, it is not clear why overall ET and related program enrollment are flat, even as comparative program data show absolute growth, and growth relative to statewide enrollment in all AS programs. Effort should be made to identify root causes and determine whether action can be taken to improve this aspect.

Progress: This is accomplished. Enrollment data have been researched and data pertaining to enrollment in other related degree programs have been segmented. It was discovered that down trending enrollment in other programs had a negative effect on favorable up trending of ET degree enrollment.

- The data show that female participation in high school technology programs, specifically the Automation and Production Technology program is trending unfavorably. The same is noted in ET and related program enrollment at the colleges. Effort should be made to increase female participation.

Progress: This is still pending with respect to female enrollment in the ET degree program, despite the initiation of greater effort to attract female prospects.

- Testing for ET program alignment with the MSSC test topic area of Maintenance Awareness should be undertaken.

Progress: This is accomplished.

- As a measure of industry engagement with FLATE, contributions (both cash and in-kind) have been trending flat since 2008. Review this measure to determine whether this is still a useful measure for industry engagement or replace it with one or more others which can provide actionable information.

Progress: This is accomplished. The FLATE 2013 Manufacturing Day initiative had a significant effect on this aspect of engagement by industry state-wide.

New Recommendations (in 2014):

- Develop a Best FLATE Practice that addresses recruitment of female students into the ET degree programs within the Florida State College System. Research recruitment statistics for high school to the college ET degree program.
- Collect data related to those Effectiveness Measures not addressed in 2013.