Front Cover

Title of the program and its location:

STEMworks AFTERschool
Maui Economic Development Board
1305 N. Holopono St, Suite 1
Kihei, HI 96753

Name of the evaluator(s)
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Executive Summary

The following report details the evaluation of the STEMworks AFTERschool™ 21st Century Community Learning Center program during the 2016-2017 school year at Lokelani Intermediate School (LOIS), Lanai High and Elementary School (LHES), Lahaina Intermediate School (LIS), and Maui Waena Intermediate School (also serving students from St. Anthony's School, MWIS), and Pukalani Elementary School (PES). The program was evaluated primarily with regard to program outcomes: providing information regarding how well the program achieved its goals, and informing guidance for ongoing program development. The evaluation also served the secondary purpose of documenting the program's implementation.

The program has procedures in place to document implementation by collecting data regarding program attendance, coordination and communication between in-school and after-school staff, contact and communication with parents, community outreach efforts, and curricula. The evaluation used data from survey instruments and both formal and informal observation tools, that gathered feedback from teachers, students, staff, parents, and community members regarding their experience of the program and its impacts; student performance in math, science, reading, and development in an array of core skills; student behavior; student perceptions and goals in STEM; and student development of leadership and teamwork skills.

STEMworks AFTERschool™ is a multi-faceted, hands-on program where students access enrichment activities based in the most current, high-end technologies applied to community service learning projects. Students in STEMworks AFTERschool™ are challenged to be self-directed, responsible individuals while developing the skills to navigate building collaborative professional and community relationships. All activities are student centered, creating an environment where teachers become facilitators, navigating student learning through community based and culturally relevant projects that integrate technology to solve problems.

All sites provided academic tutoring on an individual student basis to support success in core subjects, including math and science education and reading. This year sites successfully experimented with setting aside time for increased attention to academic support as the first activity each afternoon. In addition, each site offered an array of family engagement activities through parent night events. The program continues to excel at involving community partners (private business; federal, state, and county government, institutions of higher learning) and generating in-kind donations of personnel hours and software.

The evaluation concludes that the program effectively engaged the intended participants and far exceeded expectations regarding the number of students served. Program participants included 259 elementary school students, 405 intermediate school students and 9 high school students.

The program provided high-quality services supporting core subjects, including math and science education and language arts. The program also provided an impressive array of high-quality, hands-on, technology-based enrichment activities after school and during school breaks.

Based on the self-reporting of students, program participants at all sites benefitted in a wide range of academic and job-readiness and life skills. The program is meeting or exceeding

expectations for teacher-reported improvements in student performance in the areas of classroom participation, homework completion, turning in homework on time, classroom behavior, and attendance. In every participant school, teachers report marked improvement in participants' school day performance in the core subjects of math, language arts, and science. The available data shows program-wide impacts of improvement as follows: 79% math, 84% ELA, 85% Science.

The "continuous improvement program" is functioning very well, and producing suggested areas of improvement as well as experimental solutions and adjustments well ahead of the formal annual evaluation process. It is recommended that the program continue to:

- monitor the balance of staffing numbers and hours worked per week to minimize burnout and maximize depth of instruction;
- experiment with the balance of program reach and program depth;
- experiment with data collection methods and systems to maximize data collection reach;
- refine efforts to maximize impact on subject-area academic improvement (e.g. staffing with core-subject teacher, setting aside the first time-segment for academic support).

To support continuous improvement and ensure program quality, it is recommended that the program continue to:

- implement its evaluation plan as structured;
- share summarized data from survey instruments from each site with all staff from the respective site during informal site visits so that this information can shape the program and its delivery, including by further revising data collection instruments to best serve the goals of the grant and the individual sites

Program Description

A. Origin of the program

This program originated with a 2015 21st Century CCLC grant to the Maui Economic Development Board (MEDB), for implementation by MEDB's Women in Technology Project (WIT). The program was initially designed to serve 250 total students at four school sites: Maui Waena Intermediate, Iao Intermediate, Lahaina Intermediate, and Lanai High and Elementary, with a combined student population of 3,100. The program also includes additional outreach to a geographically proximate private school, St. Anthony's with an intermediate population of 88 students. The program launch was originally proposed for spring of 2015, but funds were not issued to the program until June 2015. Consequently, the program did not launch until fall of 2015. In the summer of 2016, Iao Intermediate's principal and the complex area superintendent supported relocating the program to a different school. Additionally in the summer of 2016, another 21st CCLC grant was awarded to serve the Lanai High & Elementary School. From summer 2016 onward, the 21st Century CCLC grant to MEDB has served Pukalani Elementary, Lokelani Intermediate, Lanai High & Elementary, Lahaina Intermediate and Maui Waena Intermediate. http://stemworkshawaii.org/stemworks-afterschool-2/

B. Goals of the program

Before the original launch of this program, WIT staff interviewed teachers at each school about their interest in STEM-related afterschool programming. All schools expressed strong interest in programming based on WIT's proven STEMworks™ approach. In addition, teachers requested curricula geared towards coding, digital media, geospatial technology, and robotics.

The teachers' identified areas for programming focus align with MEDB's research on community economic development needs, and with national research regarding the importance of stimulating interest in STEM careers from the middle school level with hands-on, real-world, locally relevant, group/team-based learning.

There is nothing else within the school-to-workforce pipeline available to the majority of these students with regard to technology. This program was designed to adapt WIT's proven STEMworks™ program to serve these students in an afterschool setting at the target schools, with a curricular focus on engineering design, robotics, coding, GIS, and digital media. The program addresses the need to stimulate interest and skills in science and math and support students in continuing with this interest into their high school and post-secondary education, as well as preparing them to meet the workforce needs of their communities in viable careers. The program is intended to promote the acquisition of self-directed learning skills that will serve participants throughout their working lives as they must adjust to the rapidly changing technology landscape of their future.

The STEMworks™ curriculum supports the application of design thinking to a service-learning project and provides a context where students can integrate learning: 1) about their communities, 2) the impact and practical applications of science, technology, engineering, and mathematics, 3) the importance of developing effective professional skills (i.e. teamwork and leadership, oral and

written communication) and 4) the possibilities of STEM careers and future internship opportunities.

The project uses the afterschool program to enhance in-school efforts to promote achievement in math, science, and reading, and academic skills (like homework completion and class participation); to sustain the successes of these schools regarding attendance and behavior; to generate awareness among students and their parents about the STEM-related career opportunities in their community and the educational pathways to entry; to generate interest in these careers, which are vital to the economic development of their community; and to create and strengthen family-school engagement.

The original evaluation plan was set to measure progress towards the following concrete goals:

1. Academic Achievement Goal 1: Program participants will achieve measurable improvement in Language Arts and Mathematics. The evaluation will also track student interest in STEM education and careers, and increased ability/practice in the engineering design process.
2. Academic Achievement Goal 2: Program participants will show measurable improvement in self-efficacy, social skills, and ethical responsibility via finishing the academic year (75%), expressing confidence in their abilities to complete tasks and achieve goals (95%), demonstrating an ability to work well and collaborate with others on a team (95%), recognizing and acting on their responsibility to their team and community (95%), and attending school (95% attendance rate). Through end of year teacher surveys, the evaluation will also track class participation, behavior, and homework completion.
3. Family Participation Goal: The families of program participants will engage in program activities and support the success of their children, measured via participation in program activities (70%), and engagement with student progress (70%).

Subsequent to the original grant award, the grantor published specific objectives for grantees, and these were adopted by this program. These objectives are as follows:

- Objective 1. Participants will demonstrate educational and social benefits and exhibit positive behavioral changes
- Objective 2. 21st Century Community Learning Centers will offer a range of high-quality educational, developmental, and recreational services
- Objective 3. 21st Century Community Learning Centers will serve children and community members with the greatest need for expanded learning opportunities
- Objective 4. Participants in 21st Century Community Learning Centers will demonstrate academic improvement based on formative and summative assessments given throughout the school year

In addition, each site determined some specific focus areas for this project year, based on data gathered during preceding terms and teacher input. These were as follows:

- Lokelani Intermediate (LIS): (1) Ensure a variety of STEM exposure for new technology learning (include mini-lessons on technology students hadn't tried before since students were "stuck' on what was most familiar), (2) Support organization of work, (3) Presentation skills
- Maui Waena (MWIS) & St. Anthony: (1) Organization- (organize bag, save work, organize physical space, etc.), (2) Research – (example: credible/not credible sources), (3) Presenting – more practice talking in front of class, students present projects at parent engagement
- Lanai High & Elementary (LHES): (1) Focus on support for academic homework, (2) learning new technology (introduction of CAD/3D printing apps and software), presenting – students present projects/activity at parent night
- Pukalani (PES): (1) More specific ELA & Math integration, (2) team communication skills, (3) introduction of new technology offerings - Adobe Photoshop and computer-aided design (Tinkercad) were added mid-year.
- Lokelani Intermediate (LOIS): (1) Team Collaboration, (2) Organization, (3) Introduction of new technology (VEX ROBOTC and Adobe Creative Suite)

C. Clients involved in the program:

Risk factors present within the population of students attending the target intermediate and one elementary through high school (on Lanai) include English language-learning, low-income and low educational-attainment households. Data from the U.S. Census Bureau's American FactFinder 2008-2012 American Community Survey 5-Year Estimates report indicates that, in all but one of these communities, fewer than half of the population has attained a Bachelor's degree or higher, and in many cases, fewer than one quarter of the population has this degree of educational attainment.

Program participants included 259 elementary school students, 417 intermediate school students and 9 high school students.

Specific Program Demographics (students in program)

	Free/Reduced Price Lunch	English Learner, ELL	Special Education	Female	Male
Maui Waena/ SAS	67	29	7	98	74
PES	90	30	13	103	127
Lahaina	22	3	3	25	34
Lanai	21	2	6	26	39
Lokelani	72	35	8	85	70
Total	272	99	37	337	344

Program Attendance:

Program numbers have soared. In the first semester of the second year, STEMworks AFTERschool™ already reached near double the number of students it had reached during

the entire first year of the grant program. STEMworks AFTERschool™ engaged 584 students in the Fall of 2016. In the spring of 2017, the demand for access to STEM afterschool program continued. The program allowed space for waitlisted students, creating rotating schedules to continue providing access to previously enrolled children but allowing access to 101 new students. The year-end total from the first and second semester was 685 students engaged in STEM program. The proposed student engagement was 275 students. The community demand for the STEM program far exceeds the reach possible under current funding.

	School Year 2016-2017	Summer 2016
Maui Waena	157 students (plus 15 from St. Anthony's), 120 adults	6/13 to 7/15/17 56 students
Pukalani	230 students, 187 adults	
Lahaina	60 students, 15 adults	
Lanai	66 students, 26 adults	6/8 to 7/21/17 8 students
Lokelani	157 students, 103 adults	
Total	685 students, 451 adults	64 students

D. Characteristics of the program materials and resources:

STEMworks AFTERschool™ is a multi-faceted, hands-on program where students get to use the most current, high-end technologies applied to community service learning projects. Students in STEMworks AFTERschool™ are challenged to be self-directed, responsible individuals while developing the skills to navigate building collaborative professional and community relationships. All activities are student centered, creating an environment where teachers become facilitators, navigating student learning through community based and culturally relevant projects that integrate technology to solve problems. All sites also support academic tutoring on an individual student basis.

Materials:
MEDB's STEMworks AFTERschool™ at Lahaina Intermediate School (LIS), Lanai High & Elementary School (LHES), Lokelani Intermediate (LOIS), Pukalani Elementary School (PES) and Maui Waena Intermediate (MWIS) purchased supplies to retrofit STEMworks AFTERschool™ labs. Pukalani and Lokelani had new programs and needed supplies for coding, robotics, digital media, and 3D printing. Maui Waena and Lahaina Intermediate's program offerings both expanded, and thus additional computers were purchased for digital media and CAD/3D printing projects. All programs have been expanding to include sUAS and drones, with connections to programming & digital media, and supplies were purchased accordingly.

Funding supported the inclusion of STEM career curriculum toolkits for all sites. These classroom toolkits provide relevant career stories and information about STEM career possibilities, including alignment to prerequisites and lists of colleges that offer pertinent degrees and companies that are hiring. Curriculum arrived at sites during December 2016. The

partnership grew from the STEMworks AFTERschool™ team's presence at the ISTE conference this past summer.

Site Supply Summary for STEMworks AFTERschool™ purchased during the 15-16 and 16-17 program years:

LHES
Digital Media: Cameras, Camcorders, Color Printer
Robotics & Programming: Littlebits and Arduino kits, Spheros, Ozobots
3D Printer & Filament
Computers: Set of Laptops, tablets/cases
Drones: Phantom 3, drone parts (such as batteries, motors, propellers), repair toolkits
Securing supplies: Combination Locks

Note: Leveraged funding and partnership were utilized during program year at LHES, which provided students with access to more laptops.

MWIS
Computers: Set of MacBooks and iMacs, Apple TV, adapter, and mice
Digital Media: Cameras, video mic sets, tripods, SD cards, Bloxels, Adobe Creative Suite
Robotics: VEX and VEX IQ kits (Foundation, Add-on, Booster, and Super Kits)
3D Printer/Engraver, print filament & engraving supplies, gimbal kit builder
Drone design kits (frame, circuitry, batteries, motors, propellers), repair toolkits

Note: Considerable leveraged funding was utilized during program year at Maui Waena, which provided students with access to more cameras, camcorders, tripods, iMacs and MacBooks.

LIS
Digital Media: Cameras, video mic sets, tripods, SD cards, Bloxels, Adobe Creative Suite
CAD and 3D Printing: 3D printer & filament, 3D design mice
Robotics: VEX IQ Starter Kits, Littlebits Coding and Smart Home Kits
Programming: Littlebits, Raspberry Pi kits, Arduino kits, Spheros, Ozobots, Cubelets, Parts and tools for building Computer server to host & program, Minecraft EDU accounts

Note: Leveraged funding was utilized during program year at LIS, which provided students with access to more laptops.

Lokelani
Programming: Littlebits, Raspberry Pi kits, Arduino kits, Spheros, Ozobots, Cubelets
Digital Media Supplies: Macbook, laptops, Shortcut keyboard covers, camera, SD card, mice, Bloxels, Adobe Creative Suite
CAD and 3D Printing: 3D printer & filament
Robotics: VEX Kits: Super, Booster, Challenge, Add-ons, motors
Drones: Codable drones, drone parts (such as batteries, motors, propellers), repair toolkits

Note: Leveraged funding was utilized during program year at Lokelani, which provided students with access to more laptops.

Pukalani
Programming: Littlebits, Spheros, Ozobots, Osmos, Cubelets, Code-a-Pillars
Digital & Graphic Media Supplies: Macbook, laptops, cameras, design tablets, SD card, mice, Adobe Photoshop
iPads with Covers
Robotics: VEX Kits: Super kits & add-ons

Note: Leveraged funding was utilized during program year at Pukalani, which provided students with access to renewable energy STEM supplies.

Resources:

Grant Funds: The program expanded its entire budget of $200,000 in grant funds. Additional Supplemental Funding of $326K, along with the regular award, provided for the June and July summer program opportunities for students at Maui Waena Intermediate School (MWIS) and Lanai High & Elementary School (LHES). Additional funding also allowed for the provision of interpreters and transportation for deaf students attending program at Lokelani Intermediate School.

Leveraged funding supports facilitator pay during hands-on STEM and writing camps, which utilize STEMworks AFTERschool coding, robotics and digital media tools. Leveraged funding also supported participation in Introduce a Girl to Astronomy Day, Introduce a Girl to Engineering Day, and travel to VEX robotics tournaments across the state. http://www.womenintech.com/programs/introduce-a-girl-to-engineering-day%E2%80%A8/

In-Kind Donations: Many organizations donated to support Family Engagement Evenings at Lokelani Intermediate School, including: Academic Excellence Tutoring (150 backpacks), Maikai Glass (wave sculptures); Ace Hardware (STEM kits), Aloha skateboards (t-shirts), Safeway (gift card), Maui Preserves (preserves), Boeing (swag), Shaka Mouse (hats).

Software: 100 seats each of Esri ($2500 per seat) and SketchUp ($1500 per seat). Autodesk CAD products including Fusion 360 ($1,470 per seat), Tinkercad and 123D Apps.
In-Kind Total Volunteer Hours for 2016-2017:

- Pukalani Elementary: 211 hours
- Maui Waena and St. Anthony: 135 hours
- Lahaina Intermediate: 38 hours
- Lanai High & Elementary: 85 hours
- Lokelani Intermediate: 38 hours

In-Kind Physical Facilities:
MWIS (2 rooms, 5 days a week), LIS (2 rooms, 3 days a week), LHES (2 rooms, 4 days a week), PES (4 rooms, 5 days a week, plus an additional classroom as computer lab during code.org work), Lokelani (3 rooms, 4 days a week).

ACTIVITIES FOR PROGRAM PARTICIPANTS

Sites	Days of operation	Average hours of operation per week	Program Activities
Pukalani Elementary School 2945 Iolani St. Makawao, HI 96768	M, Tu, W, Th, F	10 hours (with course overlap) 22 hours (includes all hours from overlapping course offerings)	Engineering design with: Robotics, Coding/Programming, STEM Exploratory, Movie Making & photoshop, 3D printing; Academic Support
Lahaina Intermediate 871 Lahainaluna Rd Lahaina, HI 96761	M, Tu, Th, F	10 student hours	Engineering design with: Robotics, Coding/Programming, Digital Media & Broadcasting, 3D printing, sUAS/Drones; Academic Support
Maui Waena Intermediate 795 Onehee Ave. Kahului, HI 96732 (St. Anthony students attend)	M, Tu, W, Th, F	Summer: 30 hours per week School Year: 15.75 hours (with course overlap) 29 hours (includes all hours from overlapping course offerings)	Engineering design with: Robotics, Digital Media: Editing and Video, Agriculture, Drones/Robotics; CAD, Academic Support
Lanai High and Elementary 555 Fraser Ave. Lanai City, HI 96763	M, Tu, W, Th	Summer: 8 hours School Year: 8 hours	Engineering design with: sUAS (drone design, build, fly, augmented reality, & FAA regulation & safety), and 3D printing, GIS, Coding
Lokelani Intermediate School 1401 Liloa Dr, Kihei, HI 96753	M, Tu, Th, F	12 student hours (with course overlap) 25 hours (includes all hours from overlapping course offerings)	Engineering Design with Coding Hardware (includes drones), Coding Software (programming, building computers, app design), Robotics; Academic Support

Staff Procedures and Program Administration

A. Maui Waena Intermediate School (MWIS) and St. Anthony School (SAS)

Maui Waena began this reporting period with extended site offerings in the summer of 2016. These areas included Photoshop, videography and editing, storyboarding, introduction to drones and VEX robotics, and agriculture. Summer programs enabled advanced students to deepen

skills with peer mentorship opportunities, while incoming/new students developed technology and professional skills. Software camps on site at Maui Waena included two full week digital media workshops led by industry professionals. Both workshops provided introductory to advanced videography and Adobe CS6 software skills for the range of students and abilities.

The school-year program was launched with a parent engagement night that was attended by 185 families. During the school year, students from both Maui Waena and St. Anthony School collaboratively explore many opportunities being offered throughout the week, students are also able to fluidly move between course offerings including: robotics, digital media: editing and video, agriculture, drones/robotics; CAD, and academic support.

In digital media, students work on community based and culturally relevant PSA's using a variety of programs including After Effects and filming techniques for local and national competitions (winning 7 awards during this reporting period), daily student news broadcasts, and premiere their short films with families. In agriculture, students are currently developing an app where families can order food that is grown by students from their STEMworks AFTERschool™ agriculture program, and engaged in three experiential learning opportunities exploring local ag methods and careers.

All students and facilitators check in with Site Coordinator who facilitates students and gives overall announcements. Then facilitators disperse into course classrooms (Digital Media, and Computer Science) or garden (Agriculture) with students. When St. Anthony students arrive, they check in to attend with Site Coordinator and receive pertinent announcements, and then attend their given course. Educational assistants support facilitators and coordinator as needed (usually extra support is needed in agriculture and digital media). Due to high student numbers in digital media, more than one facilitator supports students, and also pulls small groups for mini-lessons based on student need. Most activities take place 4 to 5 days a week.

B. Lahaina Intermediate School (LIS)

STEMworks AFTERschool™ facilitators launched this year's program with several in-school meetings and student broadcasts to recruit new students for the program in early August. Students were able to explore and move between course offerings which included: engineering design with: robotics, coding/programming, digital media & broadcasting, 3D printing, sUAS/drones; academic support.

Students presented their Quarter 1 projects for families during an engagement evening. Projects that students shared included programming and photography with drones, CAD and 3D printing, and a Minecraft city and society, with a fully functioning monetary and legal system hosted a server that was set up by the students. New STEMworks THINKit tools were also introduced. The event culminated with students and parents engaging a visual coding competition with reflection.

The program brought a "Connect with Code STEMworks Workshop" to this campus, where students learned about high school to college pathways from graduated STEMworks™ students,

along with engaging in hands-on prototyping smart-home devices using hardware and software coding skills.

This campus held their own STEM Family Engagement Night during the spring semester. Students taught parents and siblings about digital media, 3D printing, photography and robotics. Year 1 program data summaries were also distributed to all family, admin and community attendees.

LIS uses a co-teaching model where all students gather together for announcements and projects in one classroom and each facilitator pulls small student groups for mini-lessons based on student needs and areas of interest. Mini-lessons may take place in the same room at the same time, and sometimes another classroom is used if students need more space (such as a quiet space for filming). For example, one teacher may give a mini lesson on the next steps using CAD while the other facilitators may support students in digital media techniques. Students attend mini-lessons based on their current project need and area of interest. Instructors co-teach classes throughout the week.

C. Pukalani Elementary School (PES)

Demand for this program was huge, and ultimately reached over half the school population, but this meant there was only room for many students to come once per week. Continuous program improvement observation revealed that two hours of program afterschool was too long for the younger students, so classes were adjusted down to 1.5 hours.

Family engagement was particularly successful at this new site. In late August, STEMworks AFTERschool™ program was presented to over 200 families at Pukalani Elementary School's annual open house to gain interest. Following this event in early September, over 185 families were reached at a science family engagement evening with hands-on stations and presentations made by all PES STEMworks AFTERschool™ facilitators; families completed program surveys as well to support data collection on student and community needs to improve the program. In December, a family engagement evening reached 175 attendees with an Hour of Code, student presentations, and a parent software engineer guest speaker. In May, Pukalani program students and parents participated in and hosted the Science Olympiad Family STEM event. This event not only engaged students and parents in STEM activities, but was supported by over sixteen parents and six high school volunteers. Students from Pukalani Elementary, Kula Elementary and Kalama Intermediate participated as well. This event was also an excellent avenue to announce and continue recruitment for the summer 2017 program.

Throughout the school year, students were able to engage in coding, inquiry science, graphic design, CAD, 3D printing, movie making, robotics, and receive academic support.
The students' work with robotics and 3D printing resulted in awards, attention from the press, and invitations to present to other schools. The kindergarten class focused on "classroom norms" the first semester as these children were still adjusting to the experience of school. Next program year, kindergarten students will wait to begin to access the program until the spring semester.

D. Lanai High and Elementary School (LHES)

A variety of current 21st CCLC afterschool site offerings were extend through the summer. Students continued engagement in sUAS through drone design, construction, flight, and augmented reality. Students were also guided through the updated FAA regulations & safety protocols. Students also extended program opportunities with 3D printing. Summer programs enabled advanced students to deepen skills with peer mentorship opportunities, while introducing incoming/new students to technology and professional skills.

A collaboration meeting with teachers and the Lanai High & Elementary School (LHES) principal helped to formally build STEMworks™ methodology into the school day for the upcoming year. After meetings with the new 21st CCLC grant management team on Lanai, the existing STEMworks AFTERschool™ drone program resumed program in August 2016. In addition, students accessed programming in GIS, Coding & THINKit.

AgPonics set up Arduino-based aquaculture and hosted a workshop for students. Students learned about healthy food, food safety, hydroponics systems, and how to leverage technology in caretaking and monitoring aquaponics systems. Later in the year, AgPonics returned to check in on the student-run system and help troubleshoot challenges.

In October, Lanai High & Elementary engaged families is STEM learning through THINKit tools. Families engaged in STEM activities that included areas of coding, circuitry, GIS, drones, and prototyping. Students in the sUAS drone class also presented what they had been learning during Quarter 1. The family engagement night helped to launch quarter 2, where GIS and coding classes resumed alongside the sUAS/3D printing drone class. Families continue to be invited to participate in LHES STEMworks AFTERschool program and learn alongside their students.

In the spring, Women in Technology team, alongside Hawaii Drone Services, afterschool teachers and students, demonstrated STEMworks™ THINKit coding and STEM Careers at Lanai's 5th Friday. This Family Engagement connected 39 students and 26 parents to program activities. STEMworks AFTERschool™ students shared their knowledge and the program distributed year 1 data alongside program sign up.

LHES had a schedule where different classes meet on different days. At LHES, the site coordinator both runs a regular class once a week and checks in with other classes throughout the week. These check-ins by the site coordinator are flexible, and often by request from instructors in order to co-teach or provide any additional support as needed.

E. Lokelani Intermediate School (LOIS)

This program was launched via an open house sharing last year's STEMworks AFTERschool™ video created by MWIS students. Parents completed surveys to provide data for students and community needs. Students engaged in the program, through engineering design, with coding hardware (including drones), coding software (programming, building computers, app design), and robotics; and received academic support.

The program supported participating students and teachers in participating in a series of VEX robotics tournaments on Oahu. The Lokelani team was recognized for their mentorship and collaboration with a Sportsmanship Award, and rose to 6th and 4th place finishes at the completion of the series.

During Fall Break, three full days of on-site training for Adobe Spark & Photoshop was delivered to Lokelani students, teachers, and parents on their campus. Adobe Spark software was used to design social graphics, webpages, and animate videos. Lokelani students have 1:1 iPad use, and are learning Adobe Spark apps to support their work in school and afterschool projects. Seventeen students, four parents and two teachers participated. Participants became content leaders, sharing what they learned with their classrooms/schools.

Lokelani's spring Family STEM Engagement Night engaged over sixty-six families. Prior to this event eight families built robots to compete in the family robotics tournament, families also visited stations and featuring areas of program and STEMworks THINKit supplies (including robotics, Spheros, Cubelets, drones, 3D printing, photography, and computer building) prepared and led by Lokelani students. Year 1 program data summaries were also distributed to all family, admin, and community attendees.

Lokelani opened its campus for another Parent Engagement which was extended to 5th graders from two feeder schools and their families. These students were invited to sign up for the following year and learn about the program in hands-on STEM stations led by current students and their families. This event was attended by over 48 families. Students got to meet and learn about a career in chemistry from a guest analytical chemist and participate in a Family Robotics Tournament.

Career exploration included a visit to learn from Dr. Davina Pruitt-Mentle from the National Institute of Standards & Technology (NIST) on Maui for a student session focused on Careers in STEM and specifically in Cybersecurity. Lokelani students and teachers also interviewed Makai Glass professionals at their studio to learn about STEAM career connections, such as the science and art behind glass blowing. This team used footage and interviews to create a digital media video short about a local career, which was entered into the Hawaii STEM Conference Career Video Competition.

F. Multi-Site Programming

All sites meet as a whole team at least once a quarter and have a site visit by the project director at least once a semester, but often more. All site coordinators and instructors support during family engagement evenings as well. Throughout the year, the Project Director works with each site, conducting program planning and implementation meetings (both site-specific and center-wide), site visits and supply inventories, grant review meetings

Students from multiple sites (new and transitioning) attended the STEMworks™ four-day Excite Camp and two-day Illustrator Software Camp during the summer. A mix of students from schools across Maui attended, including students from Iao, Maui Waena, and Lokelani. Students were trained by industry professionals, engaged in the engineering design process,

practiced presentation skills, and developed software abilities. Excite Camp concluded with family engagement where students used the digital documentation of experiences from their week and formally presented to families in teams.

Seventy-six students in total from Lokelani, MWIS, and PES in addition to seven teachers and four parents, attended the AMOS Student Day where students engaged in hands-on STEM sessions led by industry leaders in space science from across the globe. Students met and were taught by physicists, astronomers, engineers and data scientists. Students also had the opportunity to connect with their peers from different schools across Maui.

Twenty-one students from both MWIS and Lokelani attended the 2016 Children & Youth Summit at the Hawaii State Capitol. Students heard about local social action relevant to Hawaii from both peer and adult panels, engaged in break-out sessions aligned with their interests. Service learning focused on community needs is at the heart of STEMworks™ methodology - this opportunity connected students to civics and building leadership within their classrooms.

During the full week of Fall Break 2016 on Monday and Tuesday, students from all middle school sites, program teachers, plus parents were invited to attend two full days of a STEM Software Camp focused on Adobe CS6 Illustrator. Sixteen students from MWIS, LIS, and Lokelani, plus three teachers engaged in comic book drawing. Students practiced sharing and presenting about their learning and products a few times each day, this helped them build skills for the final exhibition. Six parents supported their kids by listening to presentations that showcased each student's creative work and new skills. Skills will be utilized as tools for projects and attending students & teachers became content leaders, sharing what they learned with their classrooms/schools.

MEDB Women in Technology's Digital Alliance partnership with Microsoft brought Microsoft's Digi-Camps to Maui. Students from Lanai High & Elementary, Lahaina Intermediate, Lokelani, Maui Waena, and St. Anthony (along with other schools, for which leveraged funding was utilized) attended on Nov 30th and Dec 1st. This was an intensive hands-on training focused on computer science with an emphasis on coding - led by Microsoft professionals.

Students from Maui Waena and Lokelani attended "The Future of Making Things" alongside Maui AEC (Architectural, Engineering and Construction) industry professionals to learn about new technology affecting the building industry, mobile tech and cloud computing, Autodesk software - building information technology and Fusion 360, current industry use of laser scanning for 3D modeling, and steps that participants can take to stay competitive. Yoshi Honda, the Director of Operations for US CAD partnered with MEDB's Women in Technology to not only open this workshop to students, but tailored the presentation to be relevant to both students and industry. After the session, students had the opportunity to mingle with local Maui industry professionals, who were as equally interested in the students' STEM aspirations as the students were interested in learning more about their future opportunities. The partnership with U.S. CAD was established during the Autodesk University Conference in the Fall of 2016.

Lokelani's STEMworks AFTERschool™ facilitators hosted the Maui League VEX IQ Tournament at Lokelani Intermediate School. STEMworks AFTERschool™ participants included twenty-five students, two teachers and three parents from Pukalani, twenty-five students and three teachers from Lokelani, and ten students and two teachers from Lahaina Intermediate. The event was a huge success in bringing several STEMworks AFTERschool™ sites together and students had the opportunity to also showcase their STEM projects that they had been working on during STEMworks AFTERschool™ and in school.

Both Pukalani and Lokelani competed on Oahu in the Hawaii VEX IQ Last Chance tournament. Both teams did extremely well and this provided another opportunity for site students and teachers to collaborate.

Women in Technology's IGED (Introduce a Girl to Engineering Day) used leveraged funding to take ten Lokelani students & two teachers to learn from both Goodfellows Bro Inc. and Maui Makers. Nine St. Anthony students toured and learned about HNu & the County of Maui Landfill. Ten Lahaina Intermediate students toured and learned about Wastewater & Maui Electric Company. Twelve Maui Waena students learned from the Maui Makers and ELCCO. This event connects girls with professionals in engineering, to explore career possibilities, and engage in hands-on STEM activities.

Using leveraged funding, students participated in Introduce a Girl to Astronomy Day. This included twelve Lokelani students plus two teachers, twelve Maui Waena students, ten Lahaina Inter. students plus one teacher. Students learned directly from industry including AFRL, Boeing, IFA, and LOGCT.

WIT implemented STEM and writing camps, which utilize STEMworks AFTERschool™ coding, robotics and digital media tools. Students develop their literacy skills, as this program focuses on boosting student's academics during the summer. Students with the most need were given priority access to this daily camp. Through STEMworks™ Watershed curriculum and leveraged funding, students also had the opportunity to learn from a GIS professional. Students learned how to identify local species and use geospatial tools, such as GIS in the Waihee watershed.

Hawaii STEM Conference (all sites) – Students were taught by industry professionals in two days of breakout sessions, heard from keynote speakers, and had opportunities to ask professionals questions in a 5x5 rotation session. Participating professionals came from more than 35 private companies, federal government (Air Force Research Laboratory, National Security Agency, NASA), state government (Pacific Disaster Center, Hawaii DOE, Hawaii Dept. of Aquatic Resources, Hawaii Energy Efficiency Program), county government (Maui District CTE, Maui Electric Company, Maui Institute of Art and Technology, Maui Invasive Species Committee, Maui Soil and Water Conservation Districts, Maui County Council) and higher education (Mount Mercy University, UH College of Engineering, UH Hilo Continuing Education, UH Maui College, UH Maui College-Career Link, UH STEM Pre-Academy, University of Hawaii, University of Hawaii Maui College).

G. Professional Development

Women in Technology provides a vast amount of professional development for teachers. Program staff attended the ISTE Conference in June of 2016. This is the premiere educational technology conference in the nation, with over 900 breakout sessions and 14,000 participants from across the world. Attendance provided program staff with the industry's most progressive educational technology and standards integration. Attendees explored technology and methodology, including but not limited to, coding, UAV/robotics, digital media, and maker spaces; collaborated or curriculum and best practices, and generated ideas for integration into upcoming program years and promoted through WIT's STEMworks™ Professional Development for teachers across the state.

A Maui Waena (MWIS) STEMworks AFTERschool™ facilitator attended the summer STEMworks™ CAD/Drone Curriculum Workshop. Two Pukalani (PES) teachers attended a Code.org training. Training was implemented during both coding and robotics afterschool classes at Pukalani in both the Fall and Spring semesters.

Three teachers from Lokelani and two WIT staff attended the Apple for Education Workshop at Maui High School. Teachers learned and engaged with a variety of coding and virtual reality apps; four out of five highlighted engagement used tools had actually already been ordered by the sites, so this was an excellent training for implementation.

One Pukalani Elementary teacher participated in Island Energy Inquiry (IEI) professional development workshop and included a teaching practice presentation with reflection webinars with the WIT team. This is follow-up for teacher professional development from the June 2016 IEI course; it is a requirement for earning three teaching PD credits.

Over 50 teachers from across the state, including 21 STEMworks AFTERschool™ teachers from LHES, PES, MWIS, LIS and Lokelani attended the 2016 STEMworks™ teacher professional development training in project-based and culturally aligned STEMworks™ methodology. During this training teachers learned about the Hā program, built a computer with a start-up tech-professional from Piper, and engaged in STEMworks™ THINKit playgrounds - learning about coding, 3D printing/prototyping, digital media, circuitry & computer hardware, GIS and drones. Teachers deepened their practice in place-based methodology to engage students in the service-learning focused engineering design process. Throughout the two days, all teachers had access to professionals in a multitude of STEM areas, engaged in teacher peer to peer professional mentorship, and had the opportunity to earn three PDE3 system credits through a collaborative portfolio process. This is an especially enriching teacher professional development offered by MEDB's Women in Technology Project. All of the participating schools were provided THINKit kits to take back to their STEMworks AFTERschool™ programs.

Site coordinators from Maui Waena and Pukalani attended the Schools of the Future (SOTF) Conference. Teachers engaged in breakout sessions and networking that presented cutting edge 21st Century curriculum and technology integration. Specifically, this workshop helped to integrate CAD and 3D printing ideas into the Pukalani program plan. Funding for teacher attendance at this conference was partially leveraged from other sources.

The MWIS Agriculture teacher attended the Annual HFUU State Convention in Hilo to learn about current farming methods, plants and pests, soil health, and make connections to the agriculture industry.

Teachers from Lahaina Intermediate and Pukalani Elementary and WIT staff attended a Makey Makey workshop, hosted by HSTE. Teachers learned how to lead students through engineering design by exploring circuitry, electronics, and Scratch programming. Teachers engaged in a design challenge in order to design, build, code, test, and present a useful and purposeful device using the Makey Makey tools. This tool is also in the THINKit kits at each site for student engagement.

Three teachers from Lokelani and Pukalani along with 21st CCLC Program Director attended the Annual Autodesk Conference. Autodesk has an array of free software and apps available to all K-12 educators in addition to having a "Seal of Alignment" from ISTE. Autodesk software is a world leader and the industry standard in 3D design/modeling, engineering, and entertainment software, and helps to "prepare the next generation to imagine design, and create a better world." The software provided for free to educators is the same as industry standards tools. Autodesk has been developing its software to be globally collaborative across all platforms, while also incorporating virtual reality to model and experience designs prior to production. The team met with industry and educational partners, making connections for local training and certification processes for students not only in STEMworks AFTERschool™, but for students in other programs across the islands as well. Specifically, the team met with the Senior Manager of Education program in North America who connected the team locally to Hawaii-based Autodesk US CAD trainers as well as other certified trainers in follow-up meetings back on Maui. These meetings led to partnerships with Women in Technology for future training, mentoring and internship opportunities for students in Hawaii.

Upon the high recommendation from PES teachers who attended the Code.org workshop in August, an LHES teacher and two more Pukalani Elementary teachers attended the Maui Code.org Code Studio Workshop. They learned about using and teaching programming, Hour of Code, as well as ways to incorporate the THINKit tools, such as automating Parrot drones and Spheros with pre-programming - optimizing their ability to teach block coding in the classroom using both computer programs and hands-on tools.

Teachers attended the Women in Technology's Exploring the Watershed through STEM Workshop, featuring the use of GIS tools through experiential learning and field data collection.

Funding for this workshop was leveraged by other grant monies and participants came from many schools: including two Lokelani teachers, one St. Anthony teacher as well as three teachers from Iao. Teachers and students continued to have access to field labs to collect data using GIS tools in watersheds during spring.

Teachers trained in using Esri's geospatial technology with Esri's K-12 Education Manager, Charlie Fitzpatrick. Teachers learned to utilize layers and storymapping techniques for layering data using ArcGIS software for field study and project based learning in the classroom. This training was attended by one teacher from each of the following sites LIS, LHES, Lokelani, and St. Anthony, as well as two teachers from Iao.

WIT conducted STEMworks™ PDERI 3-Course collaborative teacher webinars to support teachers in STEM program implementation occurred in the afternoons. Teachers from STEMworks AFTERschool™ included participants from Lanai High & Elementary, Maui Waena and Lokelani. These teachers had opportunities to collaborate and share their current program and projects with other programs across the state as well as get individual support and feedback from MEDB's Women in Technology team.

Teachers from across the state attended the STEMworks™ Service Learning through STEM & Engineering Design Process Teacher Professional Development Workshop. STEMworks AFTERschool™ teachers from Maui Waena, Lanai High & Elementary and Lokelani Intermediate also attended. The workshop dove into: (1) local, national and global issues of gender equity in STEM careers, and (2) how to organize and teach STEM service learning and engineering design methodology in the classroom. Teachers had time to network and talk about their programs and projects in labs across the state (Maui, Lanai, Oahu, Big Island, & Kauai).

The Women in Technology team presented the 2017 Hawaii STEM Conference for students & Teacher Professional Development on Oahu. Both teachers and students attended from each of the sites (Maui Waena, Lanai High & Elem., Pukalani, Lahaina Inter., Lokelani) using a combination of leveraged funding and grant support. The event engaged and connected more than 1,000 industry partners, students and teachers from across the state. Industry, both local and nationally, taught breakout sessions, conversed about careers in the 5x5 session and led keynotes; Governor Ige also attended the conference.
http://womenintech.com/HawaiiSTEMConference/

Two Lokelani teachers attended MEDB's Women in Technology's Island Energy Inquiry™ Teacher Professional Development workshop during summer 2017. This hands-on renewable energy lab workshop is aligned to NGSS and Common Core math/literacy standards, with technology integration- such as virtual reality and thermal imaging. Engineering design and scientific methodology labs focus on renewable energy foundations and innovation, including solar, wind, and hydrogen fuel cell technology. Leveraged funding supported these Lokelani teachers and the workshop offers three PDERI credits.

A STEMworks AFTERschool™ teacher at Maui Waena taught a STEMworks Fusion 360 Software workshop for teachers and high school students. Along with deepening CAD skills and

extending learning across schools for 3D design and printing - the workshop integrated best practice learned from implementing CAD and 3D design with students during the past STEMworks AFTERschool™ program year and was attended by STEMworks AFTERschool™ teachers from LHES and SAS.

In order to remain cutting edge, the Project Director attended the ISTE Conference in June of 2017. This is the premiere educational technology conference in the nation, with over 900 breakout sessions and 14,000 participants from across the world. Attendance provides program staff with the industry's most progressive educational technology and standards integration. Leveraged funds also supported three Women in Technology staff (who provide technical assistance and professional development support to program sites throughout the year) to also attend. Attendees explore technology and methodology, including but not limited to, coding, UAV/robotics, digital media, and maker spaces; ideas from which will be integrated into the upcoming program years. Additionally, cutting edge insight will also inform Women in Technology's team in developing the upcoming STEMworks™ Professional Development for teachers across the state. Attendance at this conference enables innovative plans for technology rich STEM engagement in the upcoming program years.

H. Staff and others involved in the program:

Title: Project Director
Number on staff: 1
Hours: 15 to 30 hours per week to support sites through phone/email communication and site visits, program planning for events and family engagements, documenting activities, analyzing and summarizing data, and writing final reports on program activities.

Roles: Regular communication and support in record-keeping. Ensure timely communication and reminders to Site Coordinators regarding student attendance data, survey data, and self-assessment measures being completed. Provide professional development and training to all Site Coordinators to ensure adequate understanding of the processes and measures. Disseminate and collect school partner and community partner surveys. Participate in the program improvement meeting each year and in the identification of areas for improvement and development of associated strategies. Solicit feedback from site coordinators and consult with the external evaluator to understand contextual issues that might impact data or reporting. Work with the Site Coordinators to collect and handle data in a confidential way, adhering to Family and Educational Rights and Privacy Act guidelines. Maintain and enter data to state and federal systems as required.

Title: Site Coordinator
Number on staff: 5
Hours: Weekly hours at MWIS, LHES, PES, Lokelani and LIS; averaging between 9 to 16 hours per week. Often, the Site Coordinator facilitates their class and overlaps with other instructor courses to co-teach and support as needed, averaging about 5 hours per week.

Roles: Instructional and program planning; maintain accurate and clear attendance records for every student served, disseminate and collect evaluation surveys (teacher, parent, student),

participate in the program improvement meetings each year and support identification of areas for improvement and development of associated strategies. Site Coordinators use the STEMworks model during teaching. Site coordinators also interview staff in the programs to identify at least one student or family success story per year to share with the Project Director for inclusion in annual reporting. Site coordinators work with the Project Director in planning engaging community nights for both students and families to attend.

Title: Site Instructor
Number on staff: 24
Hours: Varied by course taught. Some instructors supported activities that met less frequently whereas others taught classes that met daily. Thus instructor hours varied between 2 to 16 hours per week.

Roles: Uses STEMworks™ model, attends at least two PD sessions offered by Women in Technology, attends STEM Conference. In charge of course program planning, implementation and facilitating the learning of students, supports site coordinator in monitoring student progress, attends all parent evenings. Aligns site program with student needs (skills and in-school standards), collaborates with Curriculum coordinator and uses feedback to improve project alignment to STEMworks™ model. Sessions may include academic support for in-school subject areas. Collects daily student attendance, supports site coordinator in collecting documentation, and distributing forms. Documents program through supporting with monthly project/curriculum summaries and photo-logs (images with descriptions). Supports in summarizing student success stories/student of the month. Maintains timely communication with Project Director.

Title: Educational Assistant
Number on staff: 3
Hours: 8-15 hours per week.

Roles: Assists program instructors & coordinators; assists all students in projects, supports students' critical thinking skills using the engineering design process to research, implement, edit, and revise work; may sub as needed for absent instructors; attends all parent evenings. Maintains timely communication with Project Director. May attend PD sessions offered by Women in Technology, invited to attend STEM Conference.

Title: Volunteer
Number on staff: 2
Roles: High school student or professional expert offering content support/guidance for students in STEMworks AFTERschool™ labs.

Title: Interpreter
Number on staff: 1
Roles: Additional funding supported full participation for two Deaf Ed students at program offerings at Lokelani by providing an interpreter for students during daily afterschool program participation, during workshops, and while learning from industry professionals in field experimental opportunities.

Partnerships:
MEDB partners with a wide range of Hawaii-focused STEM companies, government entities, and educational institutions. These partnerships provide career exploration opportunities for students including: cultural teaching/alignment, e-mentorship from women in industry, career and college interest exploration including: GIS, IT, coding, emerging healthcare fields, robotics, clean energy, and astronomy. During the period covered by this report, these included:

- US CAD (Autodesk) - Computer-aided design & engineering
- AMOS - Astronomy & Space Science
- Microsoft
- Maui High First Robotics team (VEX Robotics)
- STN (Student TV Network)
- ESRI- geospatial technologies
- Hawaii Drone Services
- Brown & Caldwell Engineers
- Maui Makers - makerspace & engineering
- Goodfellows- engineering
- ELCCO - engineering
- HNu - energy & engineering
- The County of Maui Landfill
- Piper - computer science & engineering
- AgPonics - programmable aquaponics system
- Fung Bros – broadcasts on YouTube critiqued MWIS student videos and gave advice for filming
- ProArts Playhouse – 3D printed figurines for the set

Evaluation Design and Results

A. Purposes of the evaluation

The program is evaluated primarily with regard to program outcomes: providing information regarding how well the program is doing at achieving its goals, and guidance for ongoing program development. The evaluation also serves the secondary purpose of documenting the program's implementation.

B. Evaluation plan

The program has procedures in place to document implementation by collecting data regarding after-school attendance, coordination and communication between in-school and after-school staff, contact and communication with parents, community outreach efforts, and curricula.

The evaluation plan includes survey instruments and observation tools (attached in appendix to this report) to gather feedback from teachers, students, staff, parents, and community members regarding their experience of the program and its impacts; student performance in math, science, reading, and development in an array of core skills; student behavior; student perceptions and goals in STEM; and student development of leadership and teamwork skills.

Formal site observations are recorded on a summary sheet that is aligned with 21st CCLC program goals. The form captures anecdotal data and verifies activities aligned with program goals. This formal monitoring is conducted at least once per semester. The completed form is provided to each site, along with summaries regarding noted areas of excellence, areas for improvement, and areas for support.

Informal site visits and communication occur between the formal site observations. These provide a venue for staff to voice their needs and suggest areas for improvement. Matters reviewed include program organization, data collection, staffing needs, supply inventory, orientation support on new supplies/software, meetings to align program with in-school courses and STEM, support with community connections or advice on projects and planning for parent engagement. Informal check-ins are also used to check in with program students, to ask what they are learning and working on in their projects. Informal site visits occur as often as needed, averaging about twice per quarter or more. Phone calls and emails are used to provide additional support as needed.

Before the fall term, grant goals and annual evaluation recommendations from the program evaluator are reviewed and goals for individual site program improvement during fall semester program are defined. After the fall term, staff reviews survey data from parents and students, evaluates program successes and needs, and choose three to five focal areas at each site for improvement to be implemented in spring.

During the 2016-2017 year, the Program Director met with Lokelani, Pukalani and Maui Waena schools at full site staff meetings to talk about the grant with all regular school teachers about the 21st CCLC grant programs, highlighting specific site programs and impact. Each presentation included program offerings as well as a focus to align the program with supporting academic areas. Year 1 program data, program schedule and the Year 2 summary of student engagement, trainings and afterschool site supplies were distributed to all teachers. Completing the upcoming Teacher Surveys for each program student was also discussed with teachers. In a further effort to support additional data collection the site coordinators from the newly added sites (Pukalani and Lokelani) accompanied the Project Director to attend the February 21st CCLC APR reporting review in person meeting on Oahu. This helped the new site coordinators obtain a full picture on the scope and needs of 21st CCLC grant reporting and upcoming data collection.

The program instituted some additional changes as a result of its continual improvement process. Consultation with teachers involved in the program's first year indicated that there was some issue of burnout. So, this program year, the program was structured to involve a greater number of facilitators working fewer hours each. This had the additional effect of allowing the program to develop more depth in each of offering, because teachers began to focus on different areas (rather than having to teach everything) with student groups. This meant that students also got more of an opportunity to 'specialize' in areas of STEM that interested them.

C. Evaluation Schedule

Tool	Lead	Month of Completion
Survey #1 (student and parent)	Site Coordinators	Quarter 1 (August- October)
Programmatic & Fiscal Update Report to 21st CCLC Office for Additional Funding	Project Director	August
Programmatic & Fiscal Update Report to 21st CCLC Office for Regular Award	Project Director	September
Formal Site Observation	Project Director	1-2 in Semester 1
Programmatic & Fiscal Update Report to 21st CCLC Office for Additional Funding	Project Director	October
Program Staff Data Collection Review and Progress/ Improvement Meeting	All program staff	November/December
Record Review & The Programmatic & Fiscal Update Report to 21st CCLC Office for Additional Funding	Daniel Williams	December
Survey #2 (student)	Site Coordinators	February-March
Programmatic & Fiscal Update Report to 21st CCLC Office for Regular Funding	Project Director	January
Formal Site Observation	Project Director	1-2 in Semester 2
Success Stories	Site Coordinators	February
Quarter 3	Project Director	March
STEM Conference PIA (Program Impact Assessment)	Project Director (Students at sites present projects)	May 6-7
21st CCLC Teacher Survey	Math or LA teacher	May
Quarter 4 Monitoring Call	Project Director	May
Programmatic & Fiscal Update Report to 21st CCLC Office for Additional & Regular Funding, includes 2016-2017 Data Summary	Project Director	June
Program Year 2 Data Review & Year 3 Planning Meeting	Project Director (With Facilitators from all sites)	Summer
Annual Report and summary for stakeholders regarding program year 2	Project Director & Program Evaluator	Ongoing data collection, Due December 21, 2017

D. Results of the implementation evaluation:

The implementation of the program has involved some changes from what was originally envisioned in the grant application, mostly in the arena of how to evaluate the impact of the program on students. The original plan was to use standardized test scores, but between the application and the first release of funds, the system of testing changed, making this no longer a viable option. In addition, the federal government came out with more concrete and explicit guidance about what it wanted reported, and evaluation tools were adjusted accordingly.

Serving 685 students on an original grant intended for 275 students was made possible by additional funding in the Fall of 2016 in addition to use of funds from 14-15 which were delivered late (June of 2015). Thus, the 14-15 funds were planned to be spent in 15-16, 16-17 as well as the future two grant years. However, due to (1) community demand for STEM program and (2) hopes of having access to additional funds, the enlarged program was allowed to continue through the second semester of 2017. However, without additional funding, Fall 2017 and Spring 2018 programs must downsize and wait-list more students.

There is enormous demand for STEM programming for students to attend 3-5 days a week. In order to reach more students, the program undertook the strategy of rotating schedules so that a greater number of students could at least access 1 day, and sometimes more, of programming a week. While this reinforces the desire for STEM learning, it did not always provide enough time to deepen skills and develop projects. In addition, data indicates that students who were able to attend more were scored higher by teachers on both academics (grade reporting) and classroom behaviors (such as homework timeliness, homework completion, school behavior, participation, and class attendance).

In the 2015-2016 school year, the major challenge was difficulty collecting survey data from parents and students. This was improved upon in 2016-2017 but is still a focus of experimentation. During the fall, the program piloted online surveys at PES and Lokelani, and this worked well. Making extra copies and meeting parents in the parking lot and other means of following up are still employed as well. The program is investing in a data management tool starting January 2018, called Qualtrics, that will put all the surveys into one tool, and send follow up reminders for each part that is missing.

In the initial program, there were unforeseen challenges Iao Intermediate. The decision was made, in consultation with the Hawaii DOE and Maui Superintendent, to transition the program to another school with appropriate infrastructure and administrative support. The award transitioned from Iao Intermediate to Pukalani Elementary, with immediate success, reaching over 195 students at it's launch in the fall of 2016. The program has also reduced it's reach at LHES where demand is lower (due to sports and a second 21st CCLC program) to where it is highest at Pukalani, in addition to opening a program at Lokelani Intermediate with equally high demand.

In the grant application, it was expected that the strongest community-based partnerships would be with entities that Women in Technology already had strong ties to. While this has been true to some extent (e.g. UH Institute for Astronomy, UH Maui), the program has developed new partnerships based on the evolving curriculum concentrations and interests of the students in the

program. Thus, new partnerships were forged with Hawaii Drone Services, Maui Makers, Brown & Caldwell, the ProArts Playhouse, and the Maui High Robotics Team.

Site observations; surveys of students, parents and teachers; planning meetings with teachers and administrators, and consultation and collaboration with community partners, all indicate that the program activities are useful, relevant, interesting, valuable and engaging.

In addition to the Key Performance Indicators/Program Measures described in the next section, the program gathered additional data on students' perceptions of their own strengths and areas for improvement, their interest in STEM careers, their mastery of elements of engineering design process, and their development of team-building and teamwork skills. Parents and students were surveyed, both to encourage and to measure aspects of family engagement. Among the findings from this additional data collection were that students talk with their families about their activities in the afterschool program (PES 87%, MWIS 73%, St. Anthony's 75%, LIS 79%, LHES 71%).

Parent engagement was a strength at all sites. While the raw numbers of direct engagement are lower at LIS and LHES, there are indications that engagement is also happening at these schools. At LHES, there was success at engaging the parents of students attending 30+ days, many participants came less than 10 days (LHES facilitators observed that most students play sports afterschool or attended a program provided by a separate 21st CCLC grant). At LIS, turnout to parent engagement was lower than expected and experimentation on solutions has begun. Specifically, as teacher feedback indicates there is good attendance as school-wide events, the program is establishing a presence at these events rather than relying on program-specific events to engage parents. Meanwhile, 79% of students report that they are engaging their parents by talking with them about the program at home.

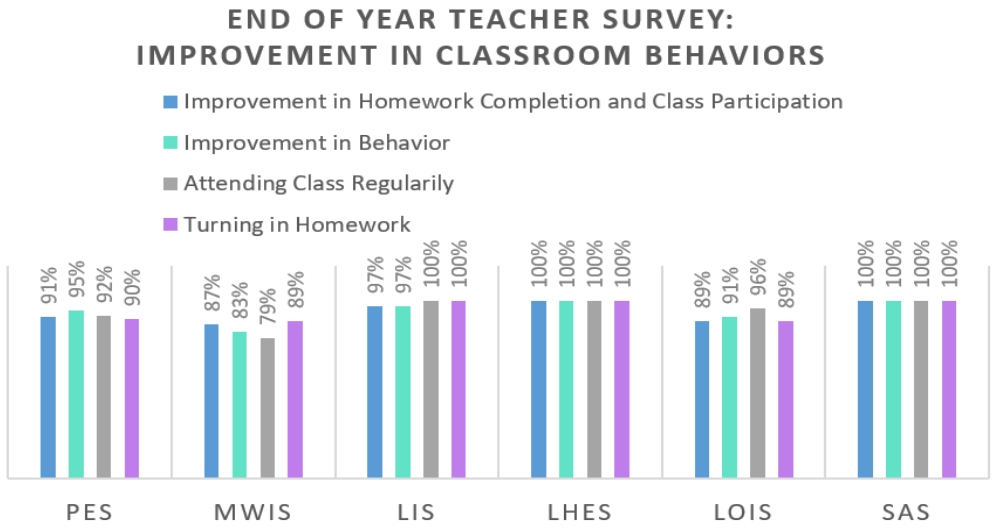
Going forward, the program will continue to implement its evaluation plan with its current tools for program monitoring and continuous improvement planning. These practices continue to inform the focus of the program and the methods of implementation at each site for alignment with the evolving goals of each school community and the federal priorities.

A. Results of youth and program outcomes:

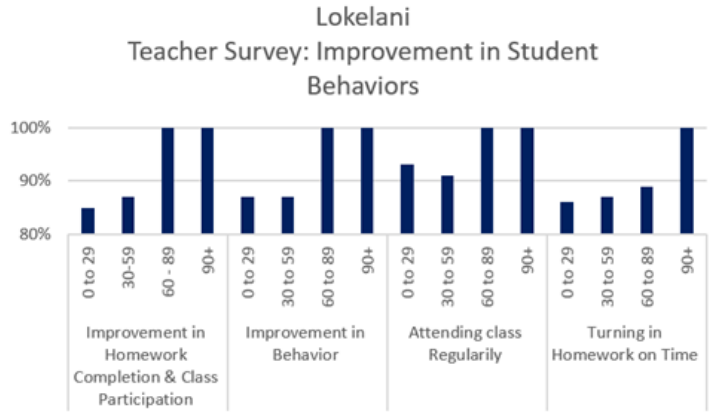
Key Performance Indicators/Program Measures
Objective 1. Participants will demonstrate educational and social benefits and exhibit positive behavioral changes.

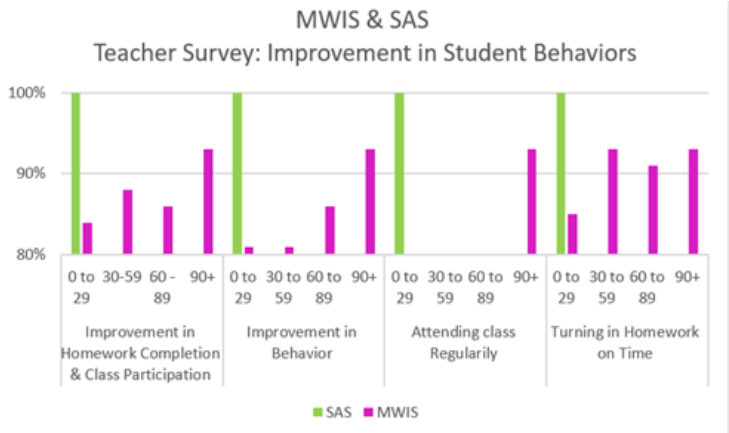
1.1 Students participating in the program will show improvements on measures such as school attendance, classroom performance.

Using the teacher survey, provided for 21st CCLC reporting, results were summarized for each site. Surveys were distributed for every student who attended one day or more of program. The graph (End of Year Teacher Survey: Improvement in Classroom Behaviors), summarizes these teacher reported survey results by each school. All schools reported a high range of student improvement (79 to 100% improvement) in: Homework Completion & Class Participation, Behavior, Attending Class Regularly, and Turning in Homework.

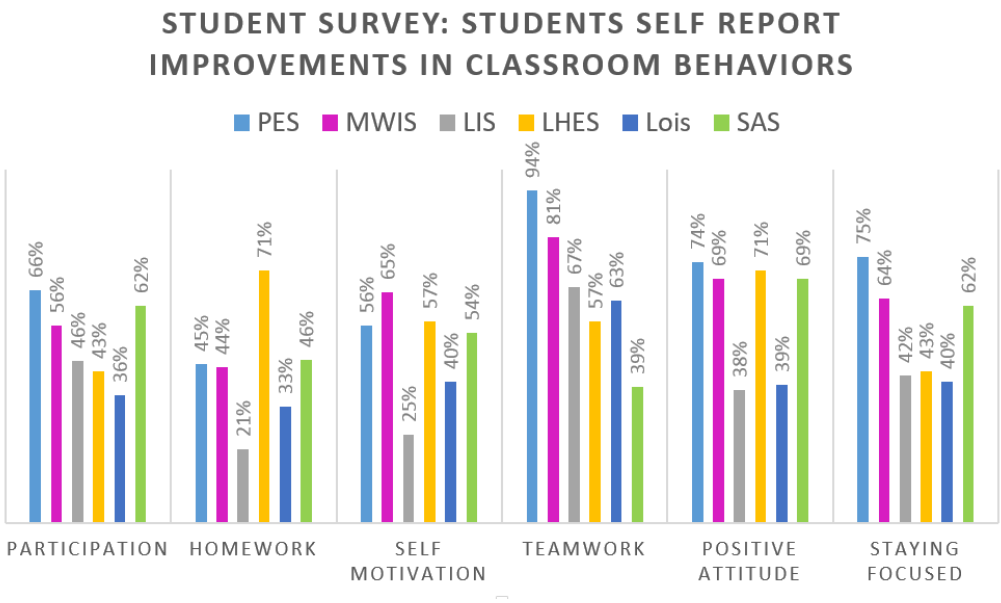


A general trend was noticed across most sites. The groups of students who attended more received slightly higher scores from teachers about their behavior improvement. This trend is demonstrated in the two graph below which compare survey categories against time in program for two STEMworks AFTERschool™ sites. Both graphs show that as students became regular attendees, their improvement in homework completion, homework timeliness, participation, behavior and class attendance were more likely to be rated higher by teachers.



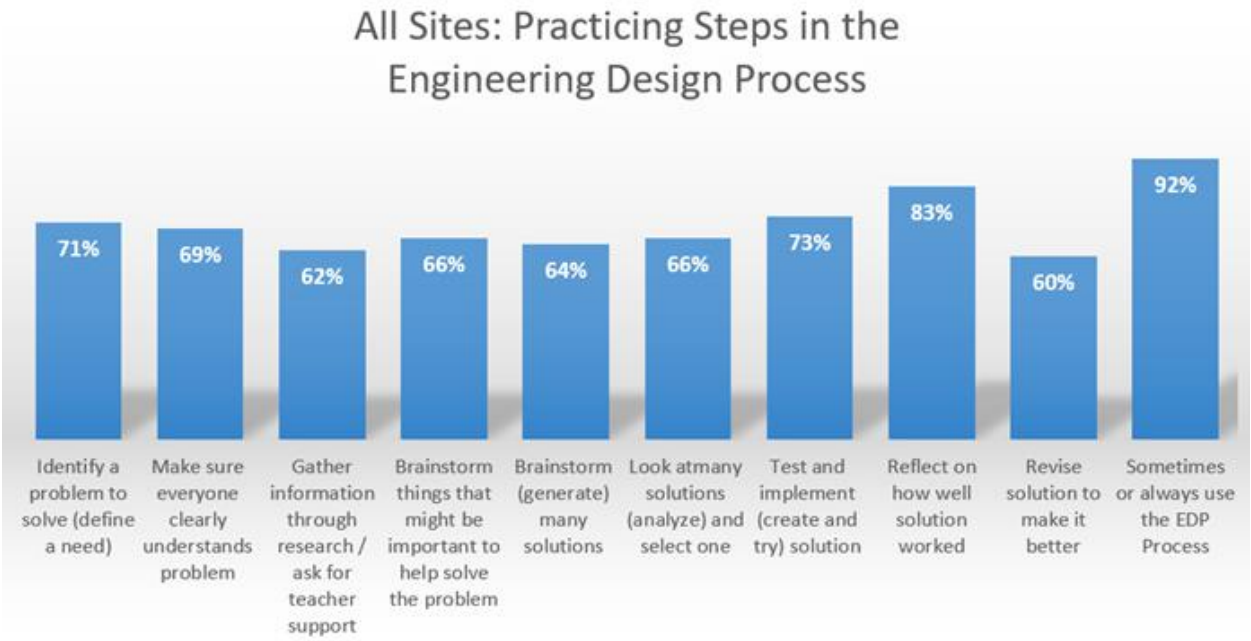


To provide a holistic view of classroom learning, both teachers and students were surveyed. The graph below, Student Survey: Students Self Report Improvements in Classroom Behaviors, shows students' self-reporting of improvements in classroom behaviors. Students were asked to access their own improvement in aspects of classroom behaviors that affect learning, which included participation, homework completion, self-motivation, teamwork, positive attitude and staying focused. Across all sites, students recognized improvements, see the graph 'Student Survey: Students Self Report Improvements in Classroom Behaviors'. Interestingly however, across all six schools, teachers reported even higher levels of improvement on homework completion and class participation (teacher's report: 94% improved) than the students themselves (students report: 51% improved in participation, 43% improved in homework completion). This data suggests that students might judge success in themselves more harshly than adults.

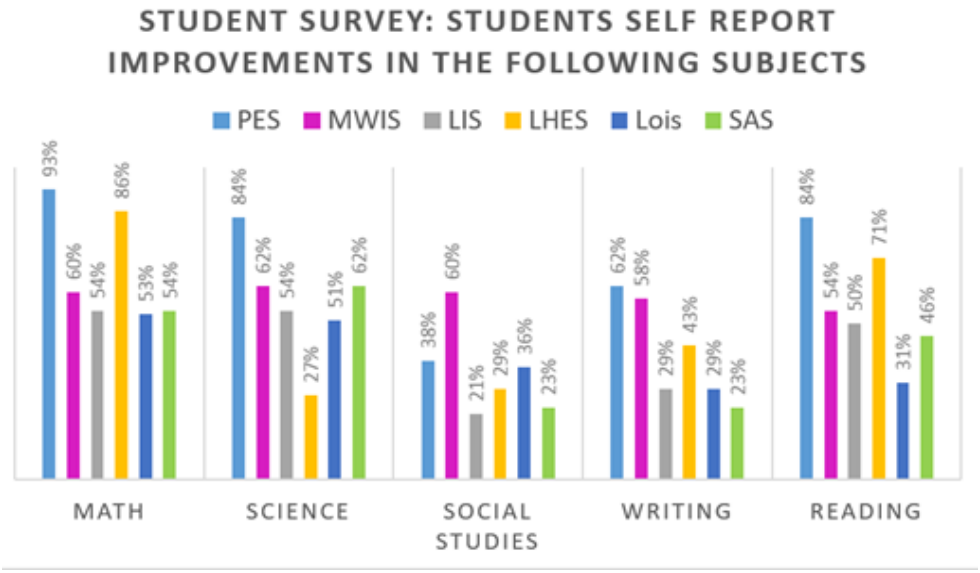


Objective 2. 21st Century Community Learning Centers will offer a range of high-quality educational, developmental, and recreational services.
2.1 Core educational services: 100% of our sites offer high-quality services in at least one core academic area.

The project based application of a variety of subject areas supports the high-quality application of core subject areas. For example, through VEX robotics, CAD software (computer-aided design) and 3D printing, students hone mathematical scale, geometric and 3D design and material strength. Though coding and programming, students practice logical reasoning, relating to the development of mathematical critical thinking skills. Through broadcasting and PSA digital movies, students' research, interview, summarize, storyboard, write scripts - practicing critical skills in both literacy and reading. In activities and projects, students practice the engineering design process, which is a core concept in science (see graph next page). Throughout each process, students developed communication and peer mentorship skills as they practiced perseverance through each step of the process in projects.

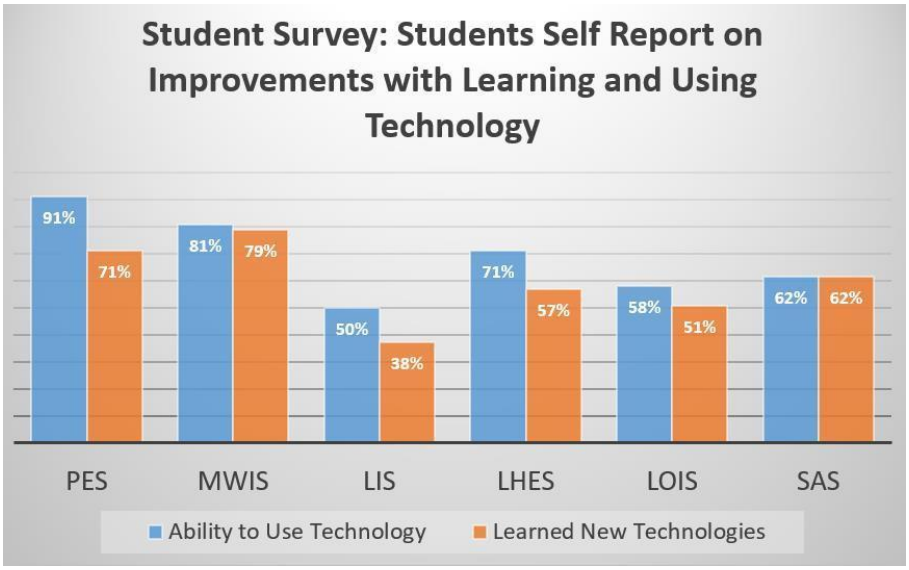


In the graph below, students self-reported improvements in subject areas. On average, across all six schools,72% of students reported improvement in math, 52% of students reported improvement in Language Arts (50% of students reported improvement in writing & 61% reported improvement in reading), 68% reported improvement in science, and 40% reported improvement in social studies. Overall goals of the program focused on increasing science, math and language arts skills. Of course, many skills improve academics, and although not depicted in this table, 57% of students across all sites recognized an increase in their ability to listen, 39% of students said they improved organization skills, and 51% of students said they participate more. Additionally, a supportive network of peers and positive friendships can tremendously influence success in school. Across all sites, 60% of students reported an increase in their own positive attitude, 58% of students identified that they have been able to improve in making friendships and 38% said they feel more empathy for others.



2.2 Enrichment and support activities: 100% of our sites offer academic assistance and technology enrichment.

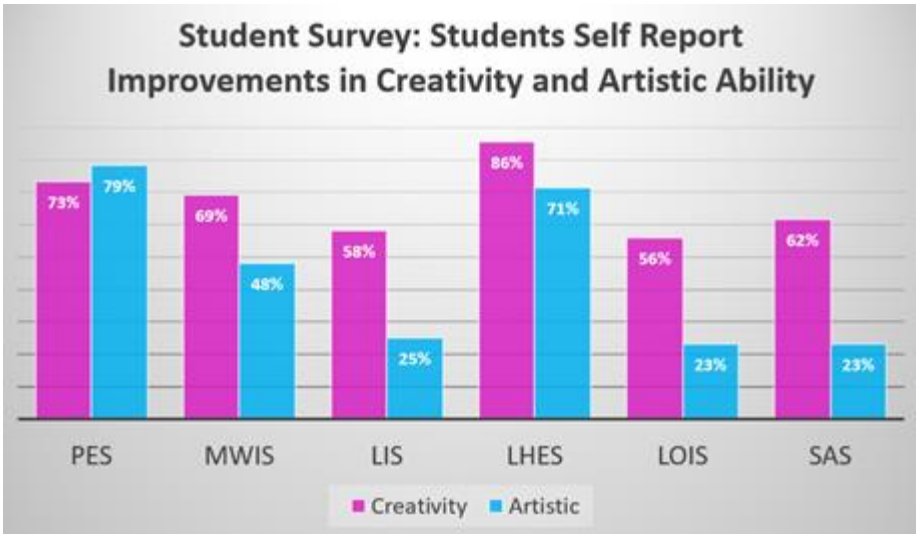
STEMworks AFTERschool™ is a multi-faceted, hands-on program where students get to use the most current, high-end technologies in actual community service learning projects. Students in STEMworks AFTERschool™ are challenged to be self-directed, responsible individuals while developing the skills to navigate building collaborative professional and community relationships. All activities are student centered, creating an environment where teachers become facilitators, navigating student learning through community based and culturally relevant projects that integrate technology to solve problems. All sites also support academic tutoring on an individual student basis.



Fluency in technology as well as learning to use new technologies will be a part of career success and opportunity. Students across all sites identified improvements in their tech use. The graph below shows the percentages of students at each site which identified that they improved on learning new technology or using technology that they were already familiar with. Student software camps, as well as teacher software workshops throughout the year, also focused on expanding project based technology use and growth, which exposed students to digital media, Adobe products, coding tools, geospatial technologies, 3D printing and computer-aided design software, and drones.

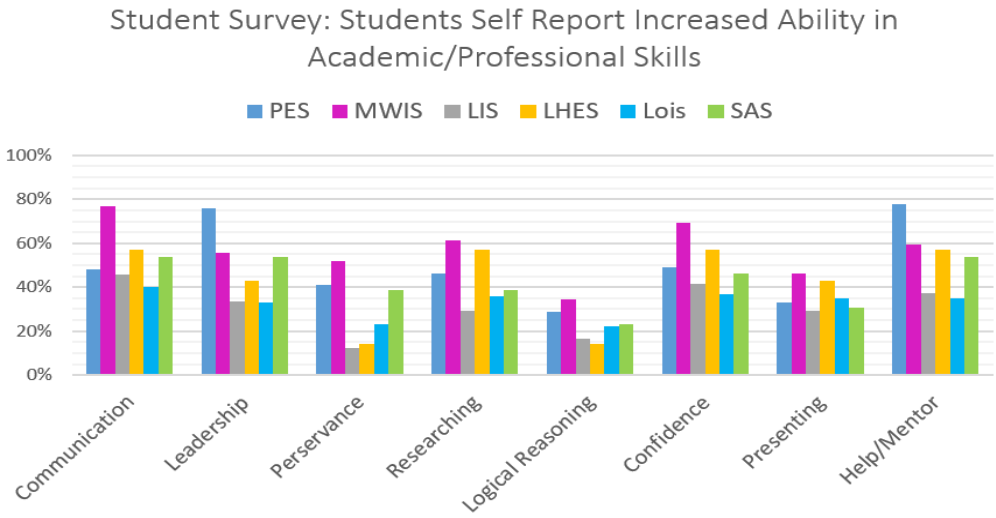
The ability to think outside of the box, innovate, or pivot an idea to create something new is tremendously important to technology career readiness. Thus, the program seeks to provide students with opportunities that challenge them to think critically to come up with their own ideas and solutions. These experiences help students to recognize and develop their creativity.

Often, the engineering design process also requires students to develop a prototype, which begins an as idea or a sketch, helping students to develop visual or verbal communication. Through utilizing the engineering design process in an array of activities, such as CAD drawing/modeling, 3D printing, and digital media - Adobe Photoshop, After Effects, etc., students practice creativity and hone their artistic abilities. The graph below depicts the percentage of students at each school that self-reported an increase in creative and artistic abilities.



Professional & Career Readiness Skills:

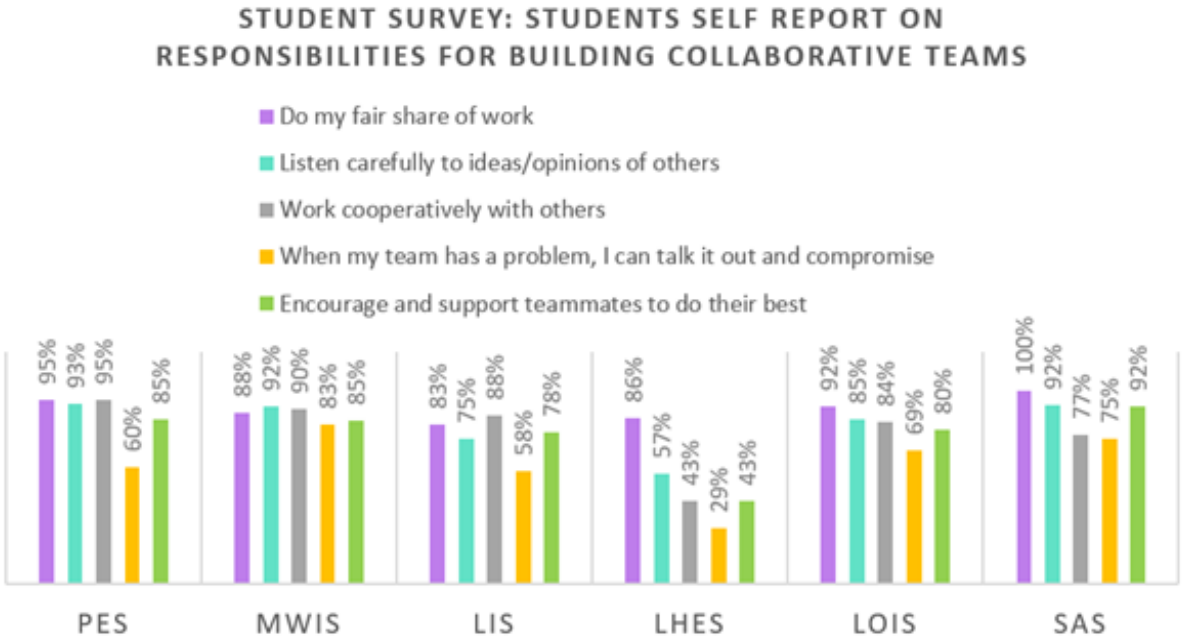
In the graph 'Student Survey: Students Self Report Increased Ability in Academic/Professional Skills', students report on improvement in a variety of professional skills that contribute to academic success. The program aimed to provide regular practice through integration and opportunities to develop the following skills. Combined site averages for students identifying improvement in each specific area are: 54% of students identified an increase in their communication skills, 49% identified an increase in leadership skills, 30% identified an increase in perseverance, 45% identified an increase in researching abilities, 23% identified an increase in logical reasoning abilities, 50% identified an increase in their self-confidence, 36% chose that they increased in presentation skills, and 53% of students identified an increase in their ability to help and mentor others.

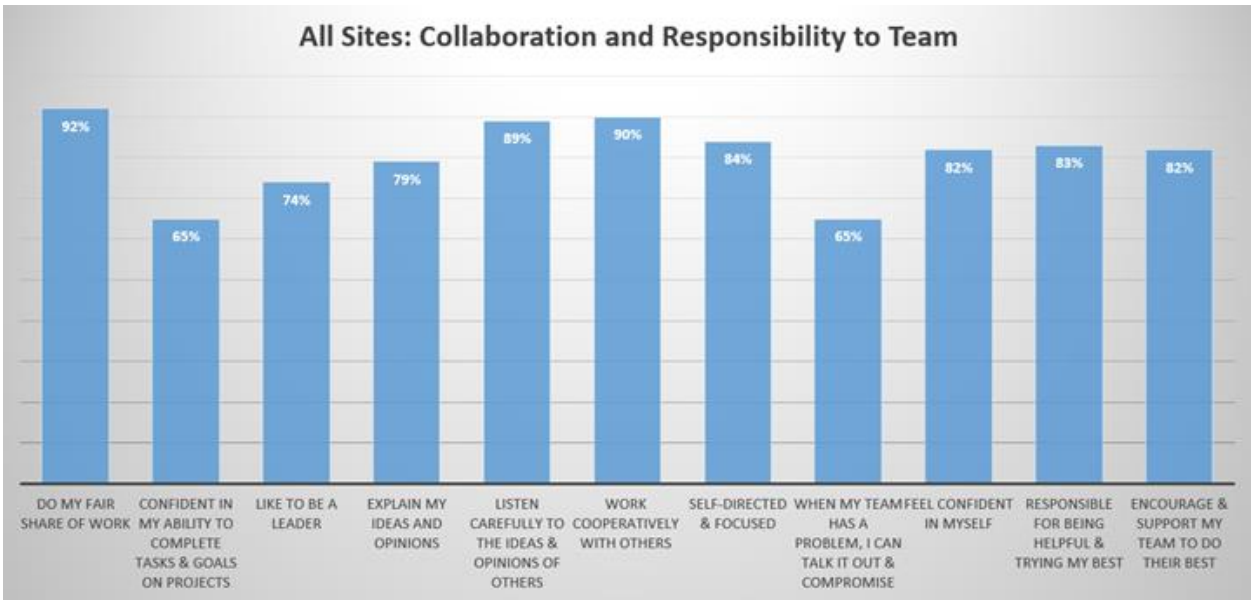


2.3 Community involvement:

Prior to establishing, developing, and maintaining their own community partnerships - which is a goal for all students as they progress into high school, students must establish, develop, and maintain collaboration skills within the classroom. In addition students' ability to work as a collaborative team is an integral part of developing professional and career readiness skills. Students are given opportunities to practice these skills every day in the program.

In the two graphs below, students report on their personal responsibility to their team. The second graph shows averages that are summarized from all six sites. Reporting includes: doing fair share of work, listening carefully to the ideas and opinions of others, working cooperatively, when the team has a problem, they can talk it out and compromise, and being a teammate who can encourage and support teammates to do their best. Across all sites, students recognize that they struggle most with the ability to "talk it out and compromise" when their team has a problem - 65% of students across all six sites identify improvement in their ability to compromise, with 90% also recognizing improvements working cooperatively with others; furthermore, 92% of students at all sites have increased in their ability to do their fair share of work and 82% of students identify that they encourage and support teammates to do their best.





Each of the sites develops and maintains community partnerships which support the program during the afterschool hours and into parent engagement evenings. Access to year round software trainings, Introduce a Girl to Engineering Day, Introduce a Girl to Astronomy Day, AMOS Student Space Day, Watershed Field Learning, and Excite Camp, and the Hawaii STEM Conference all provide valuable time for students to learn directly from professionals in STEM Careers. Additionally, each site make connections with industry based on specific students projects and local capabilities. For example, Lanai High & Elementary School has steadily been working towards community integration and skill development with students and has made strong connections with the local company Hawaii Drone Services. Lahaina Intermediate has formed connections with Maui Makers, Boeing, Inc., and the environmental engineering firm Brown & Caldwell for engineering and design connections with their computer-aided design and 3D printing work. Maui Waena's students have been given supportive critique and developed technical skills on their digital media work from Fung Bros and Editstock.com.

2.4 Services to parents and other family members: 100% of centers offered services to parents and other family members of students enrolled in the program.

Engaging the community and parents is an important aspect of the program and the program provided regular opportunities for parent/family/community involvement. All student families are encouraged to attend family STEM engagements. All families are encouraged to complete a parent survey upon sign up, generating data that then directly informs program development. Students are asked to share their learning and extend it through family discussion, and the end of year student survey helps to gather information on the percentage of students sharing their projects with families at home. Families and community are also invited to volunteer at STEM events and/or in the daily delivery of the program. The table below summarizes a multi-faceted outreach to invite parents to both inform program improvement and become engaged.

	Attended One or More Family/ Community Engagements	Fall 2016 Parent Survey (Parents have Opportunity to Inform Program Improvement Areas & Future Needs)	Students Report: "I talk to my Parents about projects I work on in STEMworks AFTERschool"	Volunteers
Pukalani Elementary	187 (81%)	102%	87%	16 Parent Volunteers and one software engineer guest speaker, eight high school volunteers
Maui Waena Intermediate	120 (76%)	82%	73%	American Savings Bank employees support Agriculture program workday
Lahaina Intermediate	15 (25%)	54%	79%	Two High School students
Lanai High & Elementary	26 (39%)	27%	71%	Hawaii Drone Services professional mentor & speaker; AgPonics professional speaker
Lokelani Intermediate	103 (66%)	59%	77%	Two High School students, Makai Glass professional speaker, Amway Analytical Chemist speaker
St. Anthony (Attends Maui Waena)	0%	0%	75%	N/A (Attends at Maui Waena)

2.5 Extended hours: 100% of our centers offer services at least 12-16 hours per week on average and provide services when school is not in session, such as during the summer and holidays.

During the 2016-2017 school year, Lokelani Intermediate offered a total of 25 hours per week, Lahaina Intermediate offered a total of 10 hours per week, Maui Waena offered a total of 29 hours per week, Pukalani Elementary offered a total of 22 hours per week, and Lanai High & Elementary School offered a total of 8 hours per week. These hours were all offered afterschool and aligned with school ending hours. At Pukalani, Lokelani, Lanai High & Elementary and Maui Waena, a variety of often overlapping courses were offered on different days, allowing students to choose by interest. Summer 2016 Program facilitators ran summer STEM programs for students at Maui Waena Intermediate (30 hours per week) and Lanai High & Elementary School (8 hours per week) campuses. During summer, students from multiple sites (new and transitioning) attended the STEMworks™ four-day Excite Camp and two-day Illustrator Software Camp. A mix of students from schools across Maui attended, including students from Iao, Maui Waena, Lahaina Inter. and Lokelani.

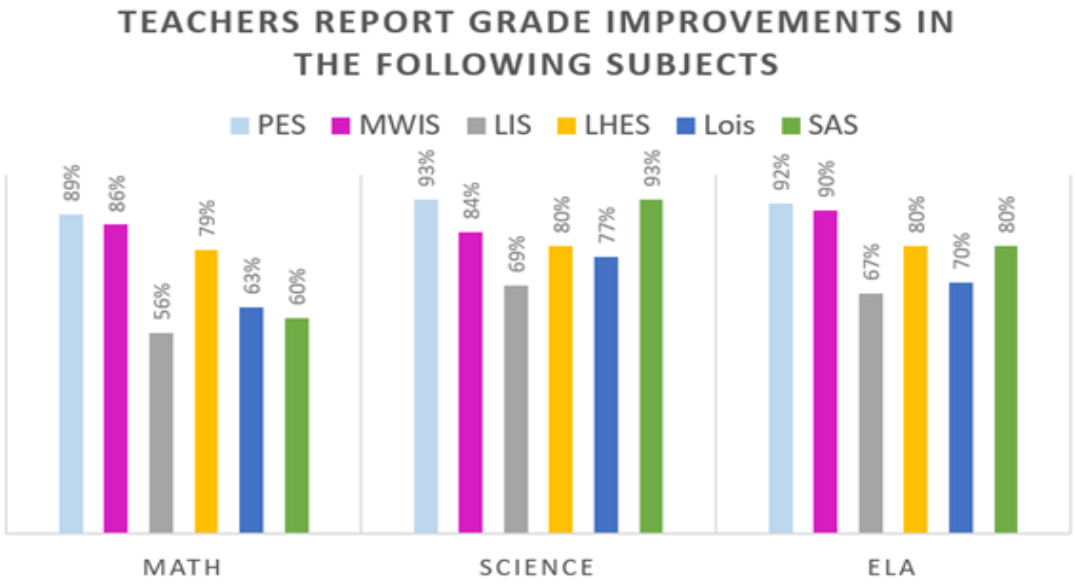
Site	Program Hours Offered per Week
Pukalani Elementary	10 hours (with course overlap) 22 hours (includes all hours from overlapping course offerings)
Lahaina Intermediate	10 student hours
Maui Waena Intermediate (St. Anthony students attend)	Summer: 30 hours per week School Year: 15.75 hours (with course overlap) 29 hours (includes all hours from overlapping course offerings)
Lanai High and Elementary	Summer: 8 hours School Year: 8 hours
Lokelani Intermediate	12 student hours (with course overlap) 25 hours (includes all hours from overlapping course offerings)

Objective 3. 21st Century Community Learning Centers will serve children and community members with the greatest need for expanded learning opportunities.

3.1 High-need communities: 100% of our sites are located at Title I schools. The percentage of students eligible for free or reduced price lunch at each site are as follows: PES (56.9%), MWIS (53%), LIS (49.2%), LHES (36%), LoIS (49.9%).

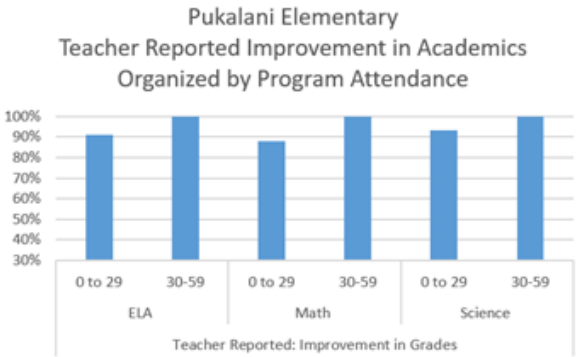
Objective 4. Participants in 21st Century Community Learning Centers will demonstrate academic improvement based on formative and summative assessments given throughout the school year.
4.1 Participants in 21st Century Community Learning Centers will demonstrate academic improvement in reading/language arts and/or math.

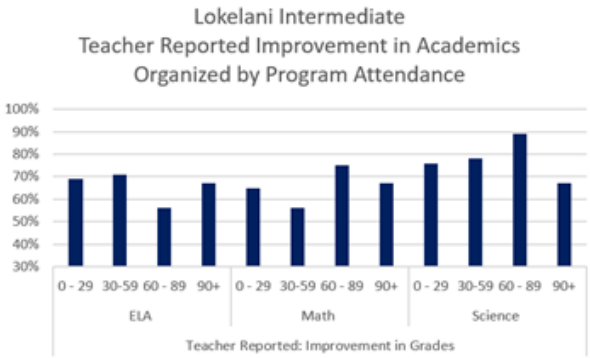
Overall, for students attending the program, teachers reported anywhere from 56% of students to 93% of students improving or maintaining academic levels of consistency in their Math, Language Arts and Science grades. The graph below shows the overall percentage of students who made improvements from first to second semester in semester end grades.

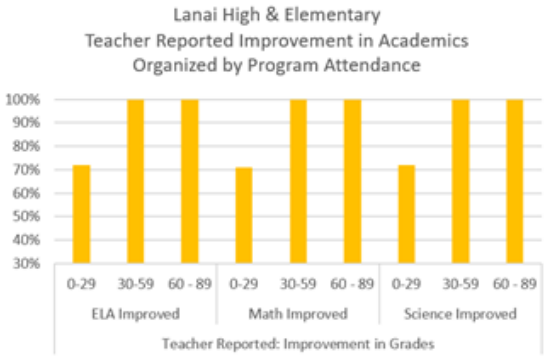


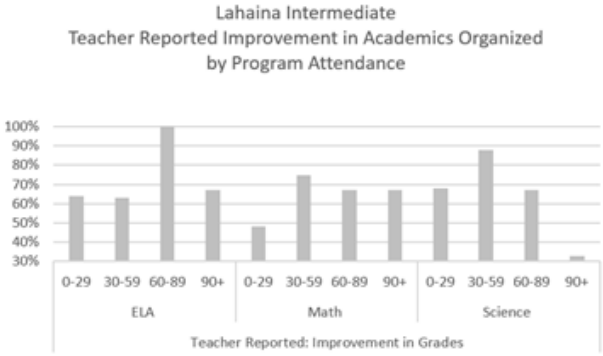
Specifically, in the areas of Math, Science and Language Arts: 89% to 93% of students at Pukalani improved their grades, 84% to 90% of Maui Waena students improved their grades, 56% to 69% of Lahaina Intermediate students improved their grades, 79% to 80% of Lanai High & Elementary students improved grades, 63% to 77% of Lokelani students made improvements in grades and 60% to 93% of St. Anthony students made grade improvement.

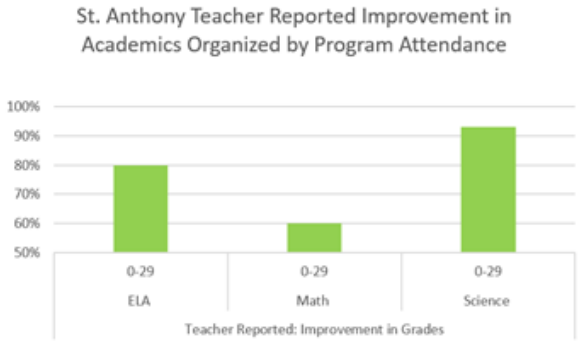
General Education teachers reported academic improvement in areas of English/Language Arts, Math and Science. The graph for Pukalani, Lanai High & Elementary and Maui Waena show that with increased attendance, students were more likely to improve in academic areas. Although there are some discrepancies, Lokelani and Lahaina Intermediate observed the same overall trend of improvement. St. Anthony students were on a rotating schedule and thus didn't meet the 30 day threshold for data comparisons.

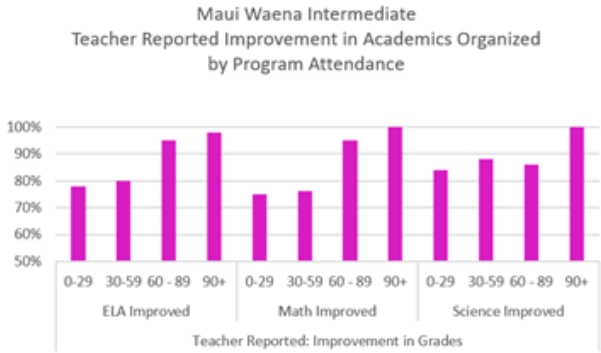






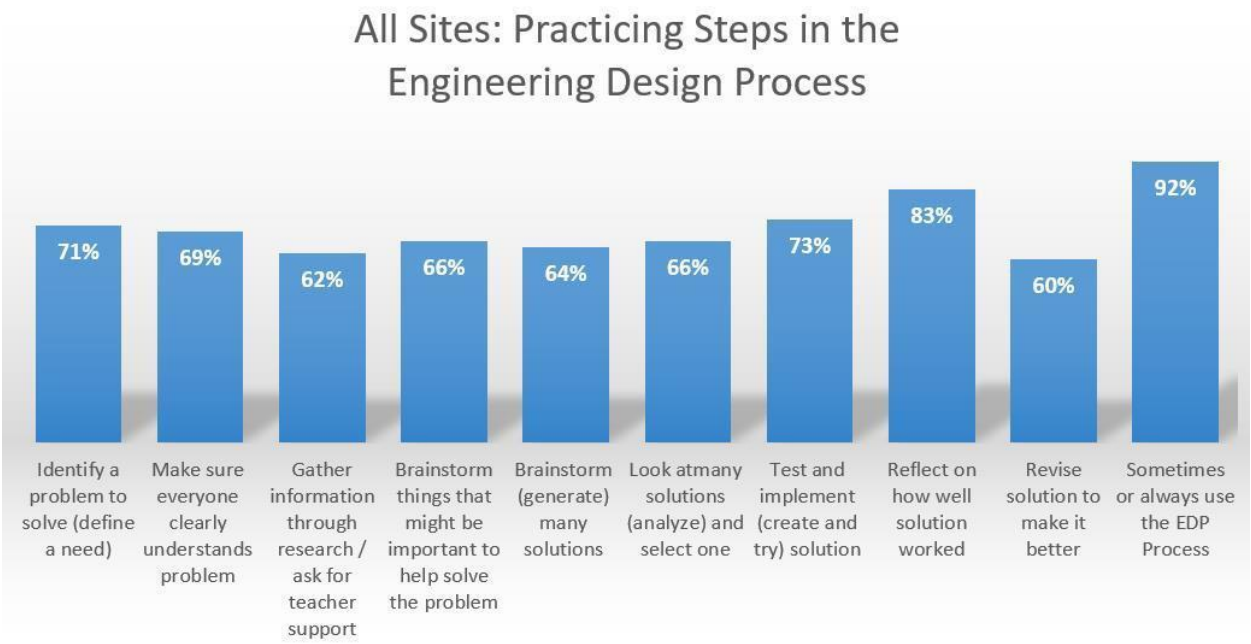






Additional Measures

The engineering design process crosscuts curriculum in science, math and language arts. Research, writing and reading skills are needed for project planning, sequencing and revision are needed for project work, mathematics is needed for analyzing and reflecting on the impact of solutions. See the graph below: All Sites: Practicing Steps in the Engineering Design Process. As a whole, the engineering design process both stimulates professional career collaboration as well as practice of grade level academic skills. Data below summarizes averages from the six schools (five program sites). Percentages in the graph show the percentage of all surveyed students who identified using each specific part of the Engineering design process during the program. Students were asked to identify if they use each step in their work during afterschool projects. Over 92% of students reported that they use the engineering design process in the STEMworks AFTERschool program.



In addition to practicing professional skills and the engineering design process through group collaborative projects, the program aimed to stimulate STEM career interest. The table below shows the percentage of students who self-identified a specific STEM career of interest. It is interesting to note that career interests reflect course offerings and off-site experiences that students were exposed to! The wider the variety of STEMworks AFTERschool™ offerings (including variety of experiences- such as software camps, guest speakers, field experiential learning) the greater the variety of STEM career interests that students identified at that site. For example, Lanai's students' career interests reflect drones and coding classes, whereas Maui Waena students' career interests reflect very specific careers from digital media classes. Furthermore, Lokelani and Pukalani have the greatest variety of STEM classes, which is reflected in their students' career choice interests. This data supports that (1) a depth of rich STEM program experience and (2) a variety of STEM offerings truly have a great impact student's STEM career interests and future goals.

	Percentage of students who identified interest in a specific STEM Career	**Students STEM Career Answers**
Pukalani Elementary	98%	Coding, 3D Printing, Vet, Animal Science, Doctor, Botanist, Builder, cardiologist, computer science, designer, creating games, Engineer, Mathematician, Chemical engineer, mechanical engineer, aeronautical engineer, stem researcher, graphic design, maker, working on machinery, medicine, mathematician, Movie Making, music making, robotics, rocket engineer, robot engineer, scientist, navigator, work at Apple, work on airplanes, YouTuber
Maui Waena Intermediate	94%	Teaching, Coding, Movie Director, TV director, movie making editor, engineer, photographer, videographer, gardener, film industry, robotics, Forensic Anthropology, scientist, news anchor, or news writer, graphic designer, video game player
Lahaina Intermediate	88%	3D drawing & printing, 3D printing, coding/programming, robotics, computer programmer, engineering, photography, science and electronics
Lanai High and Elementary	100%	Drone Pilot, Gaming, Coding
Lokelani	95%	Technical engineering, STEM photographer, Architecture, Agriculture, science, Animator, military, car engineer, coding, programming, drone pilot, drone 3D printer, doctor, engineer, scientist, game creator, game designer, glass blower, investigator, Mechanical Engineer, Electrical Engineer, photographer, Pediatrician, medical field, work at Google, robotics, music, Structural Engineer, robotics, cyber security, computer science, video games, computer hardware engineer
St. Anthony	100%	Entrepreneur in digital business like designing apps, medical field, CAD software, drones, engineer, forensic scientist, photography, Astronomy

Program Quality Outcomes:

In addition to the measures above, program quality is evaluated and monitored via site observations and student surveys. Feedback obtained via these tools indicates that the programs are succeeding at providing a positive program climate, with enrichment program practices that promote youth engagement and stimulate thinking.

Site observations consistently find that students are excited to share and talk about their work. The environment created by teachers is very inclusive. Students care about what their peers are working on and learning- students show empathy and are very supportive of each other. Students respect staff and each other, following expectations. Teachers are very attentive, and all had a sense of pride when sharing about the work of their students. Teachers knew each student's needs and could speak to how each student they taught was developing, and where they were in a project or activity.

Student-reported impacts include many key skills (samples below):

- I learned how to be patient with others, grade 6, LIS
- That you get to learn other people's strength and weaknesses., grade 7, LIS
- I learned how to share time effectively and equally. LHES, grade 5
- I learned that you shouldn't just try to do something for yourself but for the whole, Lokelani, grade 6
- I learned how to work together productively. Maui Waena, grade 6
- I have learned from my team that there are hard times but we need to stay together, MWIS, grade 7
- I have learned how to accept and incorporate others' ideas into our project. MWIS, grade 7
- I learned that things are easier with a team. Pukalani, grade 3
- If you all compromise it will turn out to be great. St. Anthony, grade 6

Teachers, who were not a part of the STEMworks AFTERschool program shared:

- Student highly benefited from having a place to complete homework with assistance
- Student seemed to improve greatly in this ability and willingness to work collaboratively with his peers
- Student has been self-motivated all year, I know this program helped him to do his best
- Student improved socially, less shy & withdrawn
- This has helped her with self confidence
- Student takes more of a leadership role
- Students reading level increased by two grade levels. He is more confident with his abilities
- Student is always excited to participate, it gives her a sense of belonging
- Student all-over improved - academic and social
- Improvement on everything!
- Gave students more opportunities to talk with peers and use voice!
- Student was upset he could not participate in the program 1st semester so he pushed mom to sign up in 2nd semester and he likes the program
- Improved reading/math - improved thinking

- Student is filled with confidence for his future because of STEMworks™
- It's a great booster for her skills, she is a focused and responsible student
- Student finds joy in the STEMworks™ program

Parent feedback at PES included a request for more depth, and the chance for students to attend more than once a week. The program is still trying to balance its reach (to the greatest feasible number of students) and depth (more time for each participant). For 2017-2018, the program is experimenting with offering two classes for each area per week, and more multi-grade-level offerings. So far, observation indicates that this is resulting in greater depth of learning and more mentoring.

The Project Director investigated the suggestion of the data that students at LIS, while still clearly benefiting academically from participation, experienced a lower level of in-school academic core subject improvement. She learned that the students had been gravitating toward spending a lot of their time building in Minecraft (where they built an impressively complex society, complete with currency, employment, and a legal system). In light of this, staff have implemented new policies for Fall 2017. The program now begins with academic work for all students. Time spent in Minecraft is limited to encourage exploration of a broader range of activities. In addition, a math teacher has been added to the staff and the program has registered for "Math Matters" competitions..

Conclusions and Recommendations

A. Conclusions

- The program effectively engaged the intended participants.
- The program provided high-quality services supporting core subjects, including math and science education and reading.
- The program provided high-quality, hands-on, technology-based enrichment activities to participating students.
- The program met expectations regarding the delivery of family engagement activities.
- The program excelled at involving community partners (private business; federal, state, and county government, institutions of higher learning) and generating in-kind donations of personnel hours or software.
- Based on the self-reporting of students, program participants at all sites benefitted in a wide range of academic and job-readiness and life skills.
- The program is meeting or exceeding expectations for improving student performance in the areas of classroom participation, homework completion, turning in homework on time, classroom behavior, and attendance.
- In every participant school, teachers report marked improvement in participants' school day performance in the core subjects of math, language arts, and science. The available data shows program-wide impacts of improvement as follows: 79% math, 84% ELA, 85% Science.
- Based on strategies implemented as a result of challenges faced the preceding year, the program achieved significant improvement in the rates of return of parent-surveys and waivers, and in the in-school academic impacts of participation in the program.

The “continuous improvement program” is functioning very well, and producing suggested areas of improvement as well as experimental solutions and adjustments well ahead of the formal annual evaluation process. Therefore, the recommendations below are those already produced by this process and in the process of implementation in the 2017-2018 program year.

B. Recommendations regarding the program

- Continue monitoring the balance of staffing numbers and hours worked per week to minimize burnout and maximize depth of instruction.
- Continue to experiment with the balance of program reach and program depth.
- Continue to experiment with data collection methods and systems to maximize data collection reach.
- Continue efforts to maximize impact on subject-area academic improvement (e.g. staffing with core-subject teacher, setting aside the first time-segment for academic support)

To support continuous improvement and ensure program quality, it is recommended that:

- The program continue to implement its evaluation plan as structured.
- Summarized data from survey instruments from each site continue to be shared with all staff from the respective site during informal site visits so that this information can shape the program and its delivery, including by further revising data collection instruments to best serve the goals of the grant and the individual sites

C. Evaluation Impacts

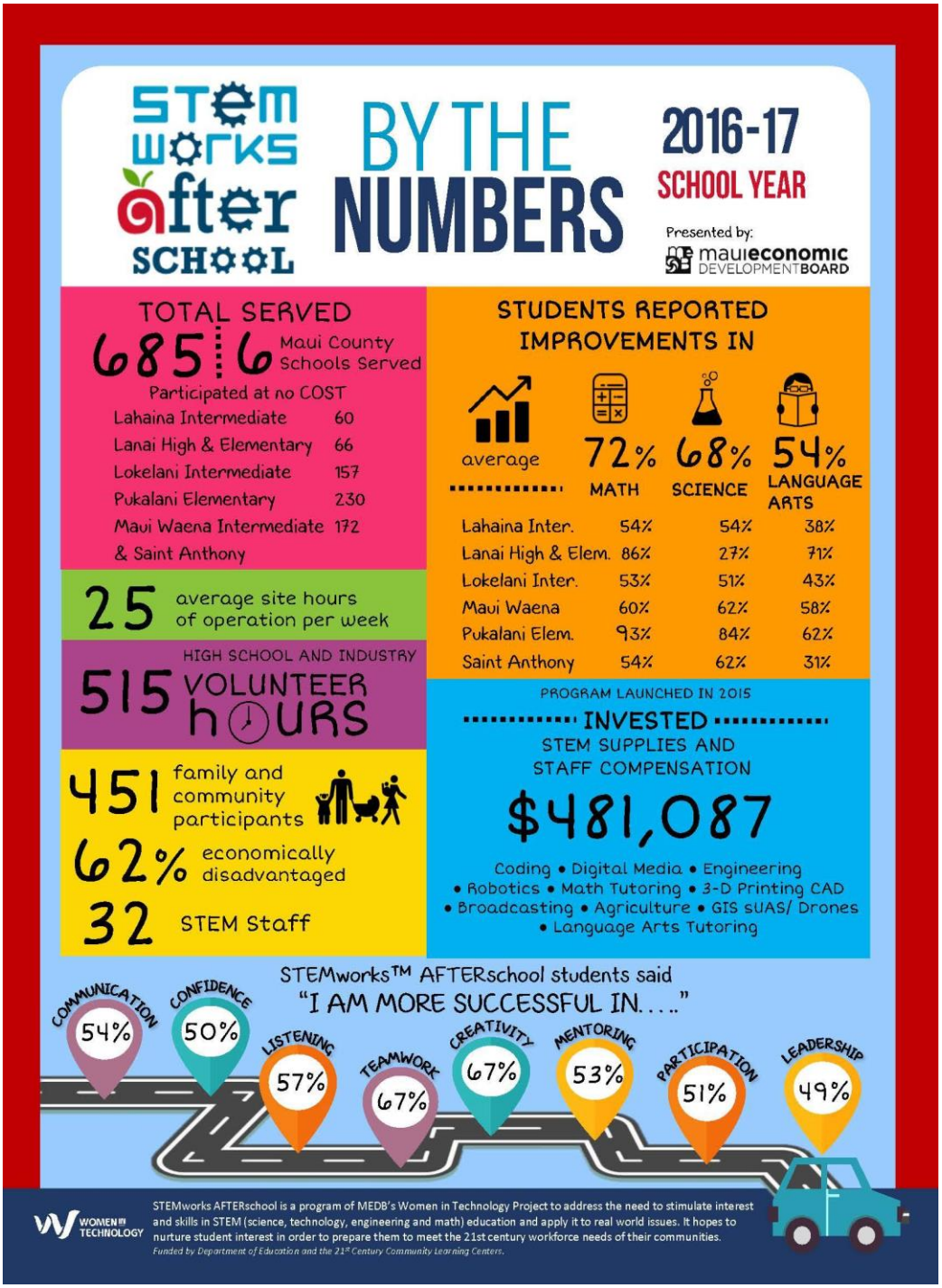
This evaluation, its conclusions and recommendations will continue to contribute to “continuous improvement” conversations at each site, facilitated by the Project Director. These conversations will further staff understanding of the goals of the grant and the value of data collection to effective evaluation.

D. Dissemination

This full report will be distributed to the school principals and site coordinators of each participating school. The executive summary and a summary of resources devoted will be further disseminated via the Women in Technology website, as well as emails to the parents in each school community, and via flyers sent home with students and distributed at future family engagement nights, and meetings with community partners.

“By the Numbers” is a community flyer to be distributed at 21st CCLC STEMworks AFTERschool™ Family Engagements & emailed to families, Women in Technology’s community events, to MEDB’s Board of Directors, posted on STEMworks™ website, included in Women in Technology’s e- newsletter to community - which includes teachers, administrators, parents and legislators.

The STEMworks™ website also posts updates, information and forms about program

and rotates a showcase of some student work. The e-newsletter contains monthly program updates and images of STEM activities that engage students.

All STEMworks AFTERschool™ Family Engagements include distribution of program information via formal presentations, program schedule flyers and personal conversations about program activities. As the year progresses, students take on a role in sharing their learning and teaching STEM program activities.