

Linking Learning to Life



2016 Bridge Programs Report



THE PAST  FOUNDATION

pastfoundation.org/bridge-programs/2016-report

A photograph showing several students in a lab setting. In the foreground, a student is kneeling and working on a black robotic device with orange wheels. Other students are standing around, some looking at the device. In the background, there are other lab equipment and a banner that says "CHAMPIONSHIPS".

2016 Bridge Programs Report

Bridge Programs | Welcome

16 years of consistent and engaging innovation

As 2015 turned into 2016, we turned our focus from celebrating 15 years of innovative, informal Ed programs to the future with a new facility that allowed us to promote, accelerate, and amplify our efforts in ways not previously possible. Our renovated 32,000 square feet of proto-typing, educational laboratory space opened in January 2016 and offered a new landscape to implement the design process PAST has promoted throughout the nation. This cutting-edge building accelerated PAST's pioneering work in transdisciplinary, problem-based learning allowing the programs to be implemented in a controlled, low-risk setting that amplified improvements in informal education. We finally had our own Research and Design lab to practice what we have preached in Bridge Programs through the years!

The design process permeated all aspects of Bridge Programming through 2016, and allowed

lessons and modifications to occur both within and among all established programs, as well as new ones. The first step in the process is identifying the problem and brainstorming ideas and steps towards solving it. The PAST Innovation Lab (PIL) offered the opportunity to create innovative, TPBL after school programs. In true R&D fashion, the PAST Bridge team brainstormed what the programs needed to address as well as the look of the programs.

Afterschool targets Middle School students. The timing and length of the programs were varied to study what worked. A mix of proven and new programs were identified to test the capabilities of PIL's prototyping facility. Established programs included *Mine It: Minecraft Mathematics*, an exciting program that leverages Minecraft to

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explore and teach students mathematical concepts through playing the ubiquitous video game. We knew how popular and successful this program would be based on previous iterations that ran in 2015, and we wanted to push the programming envelop by taking risks and introducing two new programs: *Engineer It: Build an Assisted Device* and *Practice It: STEM of Tai Chi*. We designed programs to run for varying periods of time, ranging from micro-sessions (3-4 weeks), mid-range (6-8 weeks), and macro-sessions (8-12 weeks).

One issue that has faced informal education is the lack of quantitative data supporting growth in learning and achievement. PAST has been working to fill this gap for several years by collecting short cycle assessment data around growth between the start of programs and the conclusion.

Additionally, we built and implemented pre/post assessments for each program. One issue that has faced informal education is the lack of quantitative data supporting growth in learning and achievement. PAST has been working to fill this gap for several years by collecting short cycle assessment data around growth between the start of programs and

the conclusion. All of the data collected on the various bridge, afterschool and design challenges are protected through well defined protocols and collection mechanisms defined by the PAST Internal Review Board for Human Subject Research. The new facility helps improve and expand the data collection. Each course instructor derived their own questions and consulted with researchers at PAST to ensure learning was occurring from basic to advanced

stretching students. The information derived from these pre/post assessments and variety of session lengths informed after school decision-making and instruction. We were able to consistently evaluate and make modifications intra- and inter-programs in real time.

For example, *Engineer It: Build an Assisted Device* was implemented

initially as a three week program designed to engage students with the problem of engineering a device that would help senior citizens in daily life. This program embodied PAST's foundational value of partnerships and real-world issues as it was developed in partnership with Edheads and led by Jennifer Cassidy. After the

PAST Foundation explored many partnership programs that embodied PAST's foundational value of partnerships and real-world issues as it was developed in partnership with Edheads and led by Jennifer Cassidy.

beta-test, we evaluated and determined an extra-week was needed to maximize student learning, and we modified the Presentations of Learning to focus more on students' personal journeys and design process. These intra-program modifications had impacts on other programs as we explored ways to engage not only students but also their parents in the journeys their children were taking.

Mine It: Minecraft Mathematics continued to be very popular among boys. Heather Kellert, worked to bring the world of Minecraft™ and its mathematical alive for parents through the eyes of their children. *Mine It: Minecraft Mathematics* was offered several times from January through August, bridging both afterschool and summer programming with five to eight sessions per offering. Based on feedback from pre/post assessments and lessons learned

in the other programs Ms. Kellert continually modified her methods and presentations, yielding a program that engages parents with daily feedback, notes, and rubrics to follow during the presentations of learnings, as well as students who work collaboratively in engineering teams with marketing components alongside the discussion of their products and the mathematical importance to a group of consumers (that is, parents and audience).

This sharing and communicating a challenging concept in an innovative, processable, and

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understandable manner is a core value of PAST, and we applied lessons learned from *Engineer It* and *Mine It* to share the practice of Tai Chi and how it connects cultural and mathematical concepts in one of our most innovative programs, *Practice It! STEM of Tai Chi*. Led by Jim Bruner, Practice It was the longest running, continuous afterschool session and allowed us to evaluate and modify in real-time as the program progressed. There were many

wonderful products from this program that illustrated the design process in action. The students' presentation of learning highlighted each part of the Design Cycle by synthesizing the learning journey in a production that explained Tai Chi's connection to Fibonacci's Golden ratio,

haikus, cultural customs and historical events, opera, and the rock band, AC/DC. The crowd who were fortunate to witness how the students developed, modified, and shared their knowledge were amazed at the seamless connections that were showcased. As spring rolled into summer, our Summer Bridge Programs also benefitted from our new facility and experiences with the afterschool programming.

Summer Bridge Programs were the first programs PAST offered 15 years ago, and they have always

pushed the envelope as they evolved. These programs are vanguards of formal education programs promoting immersive learning. Incorporating 15 years of experience and the informative data from afterschool programming, our goal was to accelerate our summer programs in 2016 so we could amplify their impact moving forward in the future. Our presentations of learning mirrored capstone and gateway presentations emphasizing team-building and collaborative challenges that utilized technology to better model today's and tomorrow's communication paths.

Environmental Science, *Fabricate It*, and *Art in STEM* led respectively by Ashley Bloom, Dr. Andrew Bruening, and Ketel Patel were returning programs that guide students through engineering solutions to real world issues and culminate in tangible products. *Environmental Science* once again partnered with Hocking College in southeastern Ohio to create an immersive field experience that provided students with knowledge they could

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apply at their home school SOILabs. *Fabricate It* and *Art in STEM* were both run as day camps at the Innovation Lab. Employing the capstone showcase, similar to professional engineering fairs, all of the programs made a substantive step toward more closely mimicking and preparing students for STEM Learning Lab experiences and expectations.

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Although many new programs emerged in the last year, PAST continued to partner programs through Design Challenges and dynamic partnerships. The *Cardboard Challenge*, *MATE Buckeye Regional ROV competition*, *FIRST Robotics*, *STEM Rocks the Box*, and *Spring Fling* continued to expand

the impact of PAST's immersive programming. The *Cardboard Challenge* expanded to ten locations, while the *MATE competition* drew high school teams from as far away as Detroit. The new regulation size *FIRST Robotics* competition field at the Innovation Lab got lots of use as schools from as far away as Toledo came to practice before heading off to regionals and World Championships. *STEM Rocks the Box* celebrated its eighth year producing a professional show enjoyed by a sell out crowd.

At the collegiate level the *Forensic Anthropology Field School*, a partnership with The Ohio State University (OSU), marked its tenth year in training young forensic scientists from around the world providing immersive experience from field

excavations to courtroom testimony. Returning in 2016 after a multi-year hiatus, the *SEAMAHP Maritime Archaeology Field School* surveyed a beach wreck in Massachusetts partnering with Salem University, the state historic preservation office, and the Native American Trustees of Massachusetts. Finally, an OSU/PAST course on *Global Sustainability* took students to St. John, USVI to explore the island ecosystems.

The future and staying ahead of the curve is where we keep our gaze as we incorporate lessons learned from our programs. The inspiration for our innovative and creative programs stems from the many partnerships and collaborations that have developed over the years. Although the aspirations remain the same – to link learning to life and take education to new limits it is the Bridge Programs intent to build field programs that amplify learning and accelerate educational transformation taking us to new frontiers. Our 2016 programs focused on synergistic and connecting methodologies that emphasized modern communication skills and comparative data sets between multi-level learning groups. This leads us to continue to evaluate and modify. As we conclude our first year in the Innovation Lab we are considering where we want the Bridge Programs to go now. Our recent brainstorming have once again laid everything we do out on the table for consideration and reflection, as well as alignment to our aspirations. The driving questions that begin each year's discussion are;

- Why are we running any particular program or challenge?
- What do we hope to accomplish with our annual report?
- Are we sharing all the information we could with other educators?

Several things immediately percolated to the top of the list. These include the return to letting our stories be told on the web instead of in print, letting our project PI's relate how and when they have modified their projects to better the result, and finally letting students once again have a voice in the process.

benefitted many students and teachers over the years but we also acknowledge that there is always room for improvement in order to reach an even wider audience. This drives the questions How will we accomplish this? So, with Dr. Bruening at the helm we have looked thoughtfully at the last 16 years of work and analyzed what we have done well and where can we go to achieve our aspirations. Several things immediately percolated to the top of the list. These include the return to letting our stories be told on the web instead of in print, letting our project PI's relate how and when they have modified their projects to better the result, and finally letting students once again have a voice in the process.

To accomplish this we are undergoing a makeover. Utilizing our new web design our individual bridge programs will communicate all kinds of information from simple description to reflective practice to how any teacher can take our work and tailor it for

This was a great place to start for our newest Bridge Program Director, Dr. Andrew Bruening, who replaces Dr. Calvin Mires. Calvin and family moved to Massachusetts where his wife, Dr. Caroline Mires, joined the Bridgewater University faculty. Calvin remains part of the PAST Foundation family extending PAST's reach, in the US, from coast to coast.

We recognize that our programs have

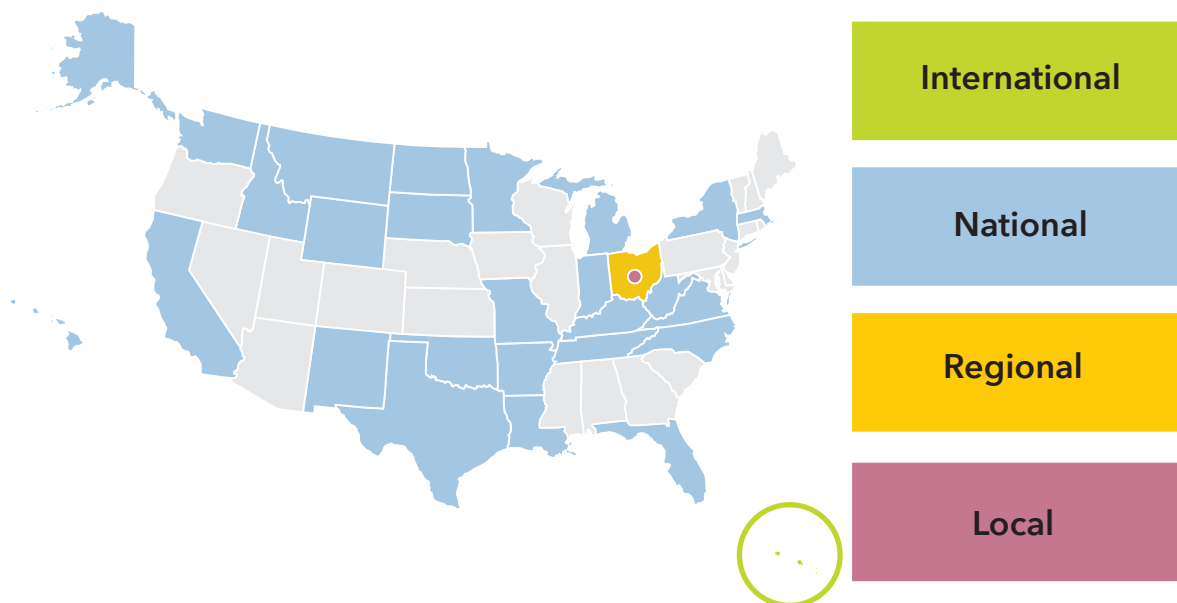
their own needs. The new model closely mimics the work we do every day. We plan to continue to bring the world rigorous and relevant informal education that sets the stage for future formal educational programs. We plan to continue to play out on the edge of dynamic education and we invite you to play along with us as we design, engaging programs that catch the imagination of students and then release the program framework so that others can tailor the modules to their own individual and unique needs. In following this process, PAST remains true to our aspiration to link learning to life and provide access to all students and teachers through innovative practices.

Join us as we expand into the frontiers of the 21st century designing and implementing informal Ed programs that take learning to new heights and new realms of understanding.



Andrew Bruening,
Director of Bridge Programs
The Fabricator

PAST Foundation's Frontiers of Access Through Innovation



PAST Foundation explored Bridge Programs on Four distinct frontiers in 2015/2016. International, National, Regional and Local. Below are all the Bridge Programs run by the PAST Foundation or by proxy of PAST Foundation, and within the PAST innovation Lab.

International Frontier



US Virgin Islands | High School Students
May 5th - Jun 20th

National Frontier



Buckeye MATE ROV Challenge
High School & College Undergraduates
Apr 30th

Minecraft Camp

SDSU July 25-29 Grades 6-8

South Dakota | Middle School Students
July 25-29



Salem, MA

Massachusetts
High School, Undergraduate and Adults
Jul 25th - 29th

Regional Frontier



Ohio | Middle School Students
Jun 13th - 17th



Ohio | High School Students
Jun 6th - 10th

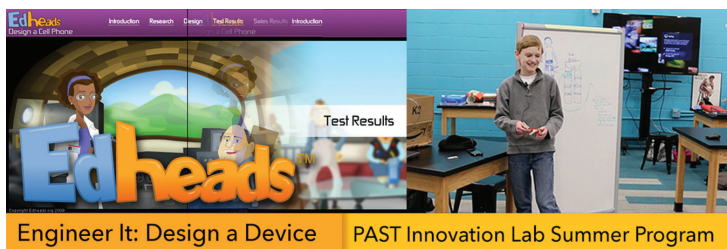


Ohio | College Undergraduates
May 11th - 27th

Local Frontier



Ohio | High School Students
Thursdays, Jan 28th - Mar 3rd
Thursdays, Mar 24th - May 5th
Thursdays, Jul 18th - Jul 22nd
Thursdays, Aug 1st - 5th



Ohio | Middle School School Students
Tuesdays, Nov 10th - 24th
Wednesdays, Jan 3rd - Feb 7th



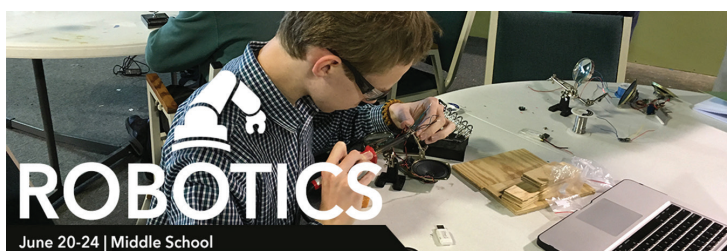
Ohio | Middle School Students
Tuesdays & Thursdays, Feb 24th - April 28th



Ohio
Elementary, Middle & High School Students
May 20th



Ohio | Middle School Students
June 13th - 17th



Ohio | Middle School Students
June 20th - 24th



Ohio | High School Students
April 18th - May 2nd
May 2nd



Ohio | Middle School Students
Jun 27th - Jul 1st



Ohio | High School Students
Jul 18th - Aug 5th



Ohio | Elementary & Middle School Students
October 10th



Ohio | Middle School Students
Fall Semester

Learn More About Our Bridge Programs

Learn More About These And All of Our Other Bridge Programs.

Visit our website at www.pastfoundation.org/bridge-programs and follow the Bridge Programs Report!