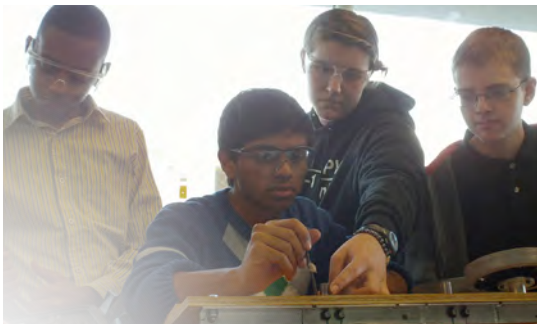
THE PAST FOUNDATION



2012 annual report

THE PAST FOUNDATION

2012 annual report

Contents

PAST Mission

By Partnering Anthropology with Science and Technology, we invite the world to design, construct, and engage in experiences that link learning to life.

PAST Vision

PAST Anthropologists are helping to change the world of education to encompass transdisciplinary teaching and learning.

PAST *in* 2012
DEVELOPING BENCHMARKS TO MEASURE READINESS

In education today, there are few undertakings as complex as transforming a persistently failing school. Shifting demographics and local economies, neighborhood safety and preserving community values, as well as urban and rural priorities all play dynamic roles in the successful transformation of schools. Twenty-first century education must be about building community rather than simply attaining a diploma. As anthropologists providing professional development in schools across the country, we are confronted time and again by common perceptions of why "nothing works". Often cited constraints include, "we are underfunded," "we lack technology," "we have no control or influence over the environment and community in which the failing school lives." Exasperated educators and administrators express a very real sense of frustration, often claiming, "we've tried everything already". The problems and constraints low-achieving schools face are similar, regardless of whether the school is urban or rural—as is the desperation surrounding how best to make transformation happen.

At The PAST Foundation, we have more than a decade of experience working directly with schools and communities in transition, and have identified key benchmarks essential to successful school transformation. PAST offers a team of experts, including anthropologists and educators, who work collaboratively toward understanding the critical needs of educational systems in transition. Using an anthropological framework, we offer powerful analytical tools to understand both the visible diversity of communities associated with a particular educational system, as well as the hidden commonalties they all possess. Large or small, urban or rural, from whole districts to the one-room schoolhouse—The PAST Foundation has effectively partnered with all levels to outline consistent benchmarks that serve as critical levers in shaping successful school transformational outcomes.

By using STEM Transdiciplinary Problem-based Learning (TPBL) as a transformative instructional strategy we have seen marked success in revitalizing and strengthening struggling schools. This PAST Foundation model is proving effective because it supports, engages and resonates with relevant community issues, business and higher education partners, targeting college and career readiness –with a priority on cultural relevancy.

Recognizing school "readiness" to engage in problem solving as a way of learning is a key benchmark in school transformation. Through more than a decade of school transformation work we have found that schools/districts, who meet the following reform criteria, or are willing to restructure current systems to achieve these goals, clearly demonstrate readiness for transformation.

1. APPROACHES
Develop, promote, and utilize innovative, and replicable approaches, grounded in research, to improve STEM education with measurable learning outcomes.

2. PROFESSIONAL DEVELOPMENT
Provide professional development experiences to improve educators' abilities to engage students in STEM learning while enhancing teaching/learning in STEM content areas.

3. CAPACITY ADVANCEMENT
Advance capacity of STEM education to inculcate students with transdisciplinary content knowledge and critical thinking skills culminating in the ability to demonstrate learning through differentiated learning styles.

BENCHMARKS *for* READINESS

4. REPLICATION
Develop a replicable model for transforming teaching/learning while building sustainable partnerships between K-12 education, post-secondary institutions, businesses, and community organizations supporting innovative STEM education capacity.

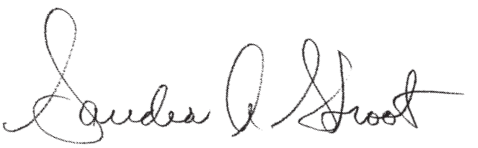
5. APPROACHES
Advance STEM literacy within High Risk populations leading to more students pursuing STEM education and careers through tailored learning pathways.

6. PROFESSIONAL DEVELOPMENT
Demonstrate the relationship between school improvement initiatives and the implementation of TPBL as a means of achieving greater student academic success.

Utilizing these key benchmarks for readiness, PAST Foundation was able to scale our model, more than double our STEM based research, and impact more students in 2012 than ever before.

Warm regards,

President and CEO



President, Board of Trustees

PAST *in* SOUTH DAKOTA
SOLVING RURAL ISSUES WITH CLINTON GLOBAL INITIATIVE

The PAST Foundation is proud to be a new member of the Clinton Global Initiative (CGI), established in 2005 by President Bill Clinton with the express mission to turn ideas into action. Our efforts to improve rural school districts' access to TPBL in South Dakota are at the center of our commitment to the Initiative.

In preparing for 21st century skills, rural youth are among the most disadvantaged. Geographic isolation, socioeconomic variables, and a notable lack of educational resources set the stage for limited exposure to STEM fields as viable career pathways for rural youth. A 2003 USDA report stated that students from rural areas are less likely to attend high school, attend college or attain a college degree. These numbers are even more devastating for Native American populations within the same states. It is clear why rural America is quickly falling behind in meaningful student participation among 21st century careers.

There is a clear need to develop a scalable model that can realistically bring quality STEM education to rural school settings. South Dakota is poised to lead this endeavor.

In 2011, the South Dakota Department of Education invited PAST to partner its expertise in transforming schools to transdisciplinary, problem-based STEM education in 4 rural schools districts, representing K-12. These districts formed a collaborative effort, known as the South Dakota Innovation Lab (SDIL) schools. Their goal is to create a sustainable rural STEM school model that can be scaled both in South Dakota and across the nation in similar rural regions.

In 2012, GearUp joined SDIL and PAST, adding four Native American districts to the endeavor in an effort to bring meaningful STEM education to South Dakota reservation schools. The STEM transformation effort in South Dakota presents a unique challenge to PAST as our previous large-scale work has been in urban environments. South Dakota epitomizes the challenges facing the rural West, where dwindling populations and strong Native American communities are searching for an effective way to deliver high quality education tailored to specific needs.

The PAST Foundation's initial work in STEM-based rural education transformation impacts students and teachers in some of South Dakota's most rural areas. South Dakota ranks first among low-populated states in the nation with 77% of its schools located in rural communities. A subset of "rural" counties—specifically ones with less than 7 people per square mile—are labeled "Frontier." Seventeen South Dakota school districts, representing a quarter of the states student population, are located in Frontier counties. Surrounding states share South Dakota's and Native American reservation's population and educational dilemmas, experiencing an unacceptable lack of educational attainment across the region.

Via a robust teacher professional development and retraining model, community engagement conversations, and the design and development of culturally relevant and holistic educational programs that are both scalable and transportable, The PAST Foundation is helping design a national rural STEM education model. Teachers and schools in this project commit to a minimum of three years of intensive retraining—they participate in comprehensive summer STEM professional development, have access to support throughout the academic year, and utilize robust resources provided by the state of South Dakota for the purposes of broad scalable implementation.

The PAST Foundation, along with Sanford Health, the Mid-Central Educational Cooperative (SD), and the American Indian Institute for Innovation (AIII) have partnered to accelerate teaching and learning through the development and expansion of a culturally relevant, transdisciplinary STEM approach to innovative teaching and learning. Building on the education transformation model now underway in the SDIL Schools, the team plans to grow the scalable and transportable model throughout the region. The intent of this partnership is to enhance rural and Native American students' motivation and cognition as well as ensure mastery of 21st Century Skills that will impact students and teachers in rural settings, supporting transformation that leads to STEM literacies, college readiness, career decisions, and community engagement.

All of the SDIL school districts are committed to sharing resources, human, technical, and monetary, while converting their entire K12 systems to a TPBL delivery format. With the recognition of CGI, these efforts will spread farther and faster than ever.

PAST *in the* SPOTLIGHT
BRIDGING SCHOOL AND SUMMER

Beth Witte's path to The PAST Foundation has been filled with diverse experiences but all are connected by the common thread of providing interesting and relevant learning experiences for youth.

Beth grew up in Mequon, Wisconsin, a suburb north of Milwaukee. She attended the city's public schools and got a very good "traditional" education. However, in her senior year, she discovered a new way to learn when she was selected to be part of a class called "Product Development." She was placed on a team with three other students and paired with a local business. The team was given the task of developing a new product along with a business plan for the product's launch. Throughout the semester long class, students were rarely in a classroom—they were at business meetings, touring factories, and calling lawyers and engineers for their advice. It was during this class that she realized she was learning much more than concepts about business, she was learning about how the world works. This experience sparked a passion within her.

She attended St. Norbert College in Wisconsin, well known in the area for its teacher education program and its focus on service-learning—a similar pedagogy to Transdisciplinary Problem Based Learning in its understanding that the best learning happens when a student is engaged in the community solving real issues. Beth pursued a degree in math and secondary education and deliberately chose her student teaching experiences to focused on urban education and working with at risk youth. Spending time in the schools made her acutely aware of the social inequalities that exist across the educational landscape and ultimately, led her to write her senior thesis on the over-identification of minority students in special education programs. Her student teaching experience repeatedly reinforced that learning happens when theory and practice collide.

"I love being out there with kids, interacting with them, actually working with directors."

It was while working on a college service project that Beth heard about a national service organization called City Year. The opportunity to work with recent college graduates on urban education projects seemed like a natural next step, so she accepted a position with the group in Columbus, OH. It was during her City Year experience that she had the opportunity to work with Columbus area schools, civic leaders and non-profit organizations. Beth assumed a leadership role, working primarily with Champion Middle School while frequently visiting Linden Feeder Schools. She was also responsible for organizing the Saturday service-learning program for 100 middle school students from around Columbus.

After this experience, Beth wanted her own classroom and was interested in alternative education settings. She found her place at Summit Academy teaching high school math to middle and high school students with ADHD, autism, and other related disorders. Beth was glad to have had that unique teaching experience and the opportunity to work with a wonderful group of dedicated colleagues.

After three years in Columbus, it felt like it was time to move on and Beth returned to her alma mater to work in the department of Leadership, Service and Engagement. There she piloted a college prep program for Green Bay area students in foster care and also worked with the St. Norbert education faculty to develop service-learning teaching experiences for pre-service teachers.

Eager for a new experience, and remembering the power that natural settings had while working as a camp counselor during high school and college summers, Beth found herself on her way to The Mountain Learning and Retreat Center perched high in the Smokey Mountains of western North Carolina. As their youth and young adult program coordinator, Beth led year round school outreach and nature education programs and directed all their youth activities, including the two month long summer camp session. Guests and campers at the center spent their days surrounded by jaw-dropping vistas and engaged in a variety of unique learning experiences that promoted discovery and personal growth.

While living in such a remote, idyllic setting was, in many ways, a dream come true, after a year and a half, Beth was feeling the urge to return to civilization—literally: her nearest neighbors were a family of black bears. One day, Beth stumbled upon an interesting post for a position with The PAST Foundation, back in Columbus, Ohio, and within a couple of months, Beth was packing up her car and heading north to begin this next chapter.

Her job with PAST includes coordinating all the summer Bridge programs, both in Kelley's Island and South Dakota, and she loves it. "I love being out there with kids, interacting with them, actually working with directors ... to me it's really important to create that cohort of people who are really invested in a program," she said. "Every director I had in 2012 is coming back ... If you can get that kind of consistency within a program, it can really be a positive thing for both students and directors."

The PAST Foundation's philosophy of delivering quality teacher professional development blended with a Problem Based Learning approach to deliver content resonated with Beth, as it mirrored much of her earlier work with service learning. She likes the idea of working with students in unique outdoor classroom experiences during the summer months and the transition to working with teachers as a STEM Coordinator during the school year. Her position with PAST allows Beth to float between the two worlds, and fully enjoy the best of both.

PAST *at the* FOREFRONT
FABRICATION LAB INNOVATION

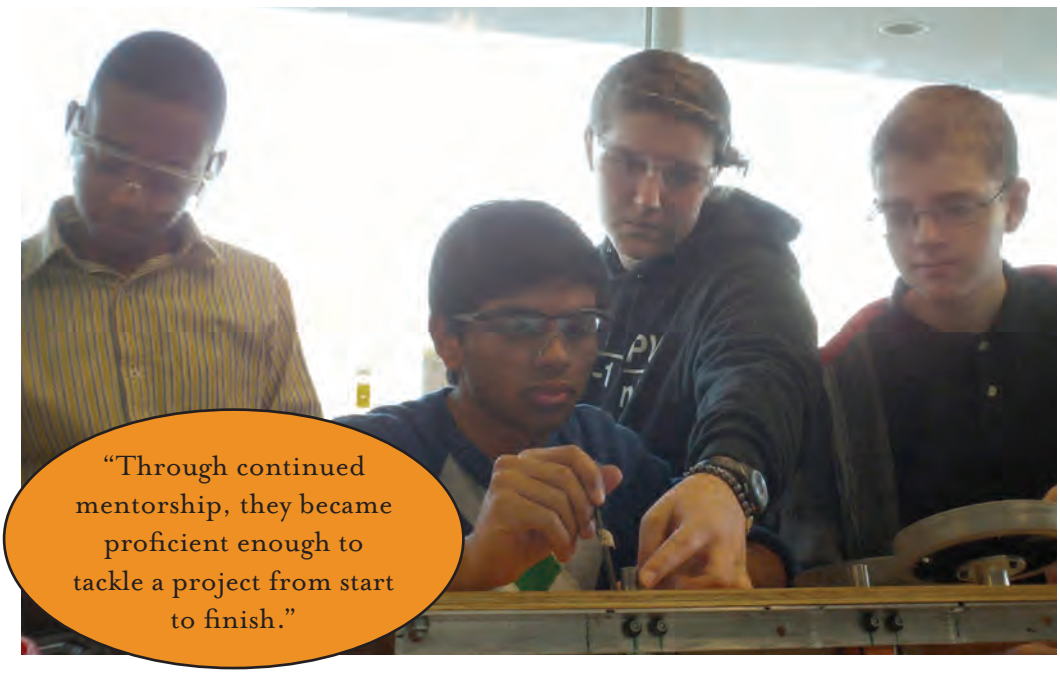
El Tiberon, a robot named for its shark like fins, was propelled through build season by dedicated students working long hard hours. Teams of students learned and taught engineering, science, mathematics and design principles to each other while cooperating in the construction of their robot. Over the last 12 months the fabrication lab has hosted Metro high school's growing robotics team, added manufacturing capabilities, trained personnel on machinery and intentionally reached out to other area partner schools.

The robotics team has significantly expanded in the past year from approximately 12 to 30 active members. The team retained several experienced students that actively mentored and taught freshmen members in areas like manufacturing, programming, electrical wiring, CNC machining, project management and design. Many students entered with a minimal skill set, unable to perform even simple tasks such as drilling and bolting. Through their continued mentorship from the team, they became proficient and comfortable enough to tackle a project from start to finish.

Additions to the shop have allowed for the set up and utilization of the Shopbot for manufacturing custom parts. Staying on the cutting edge of technology has allowed students to learn skills that will be utilized in many careers. Exploring new capabilities such as welding and laser cutting creates opportunities that are unique and meaningful for the future.

Adding capability has allowed the fabrication lab to reach beyond its borders and assist other schools. We have manufactured parts for Dublin and St. Charles high schools and have created mentor partnerships with West high school and Westmoor middle school. Robotics team members have acted as a showcase to encourage new teams to emerge.

Mentor support for the robotics team expanded to include Honda, Ohio Valley Testing, Tech Columbus, Time Warner Cable and Ohio State University. The mentors brought expertise from their specific fields and applied them with students to generate new content area experts. We have the dedicated mentor team to thank for the knowledge absorbed by the students.



"Through continued mentorship, they became proficient enough to tackle a project from start to finish."

PAST *in the* FIELD
BRIDGE PROGRAMS

ENTOMOLOGY

SUMMER BRIDGE PROGRAMS 2012

"Bugging Out In Ohio"

DIRECTORS: MEGAN MEUTI & NICK TEETS

Entomology Ph.D. Candidates, The Ohio State University

2012: June 4th – June 9th | Level II

KELLEYS ISLAND, OH

THE CONCEPT

The Entomology Bridge Program explored the interdependent nature of humans and the insect species around them. Through outdoor exploration students used living evidence to map and define the entomological species that inhabit and sustain the ecosystems of Kelleys Island. The summer STEM Bridge Program participants established a baseline study of the island's ecosystem through comparative field study, hands-on experience, and inquiry. In addition, students utilized technology to understand the local ecosystem. Students completed the week with a public presentation of learning, guiding visitors through their research with hands-on experiences.

THE STORY

A charter bus rumbled up to the ferry landing in Marblehead, Ohio as the sun rose on what promised to be a spectacular June day. One by one, a group of bleary-eyed students disembarked from the bus after their two-hour trip from Columbus, retrieved their belongings from the underbelly of the bus, and made their way onto the deck of the waiting ferry. Waves of excitement and uncertainty washed over the students as they settled in for the 30-minute boat ride to Kelleys Island. As they approached the island's shores, a line of golf carts waited to transport the students to the Kelleys Island School, which served as base camp for the week and where they joined the other students from the island.

The first afternoon was a crash course in proper insect collection techniques. With direction from Program Directors Megan Meuti and Nick Teets, the students were soon comfortable setting up and using pan, pitfall, and black light traps, and learned that if all else failed, they could rely on the old fashioned butterfly net.

Each morning after breakfast, the students hopped into golf carts and travelled to the field site of the day. Two mornings were spent visiting sites within Kelleys Island State Park. The other two days were filled with exploration of the preserves owned by the Cleveland Museum of Natural History. It didn't take long before the students got into the habit of always scanning their surroundings, constantly on the lookout for anything that crawled, wriggled, hopped, fluttered, or flew. They caught a lot of insects during these daily expeditions and enjoyed comparing the contents of their collecting jars on the ride back to lunch.

Back in the lab, the afternoons were replete with identifying and classifying the insects and then pinning and preserving the day's collection. The hours spent learning the Latin classifications of origin obviously made an impression when one night, a girl was heard screaming from her bunk, "get that Hymenoptera away from me!!"

On Thursday afternoon the students visited a local bee keeper who introduced them to the world of beekeeping and honey production. The bees were on good behavior while the students were there, mellowed out by the clear skies and blanket of smoke from the bee keeper's smoker. The students learned a lot about the hierarchy of the hive and how the different levels of bee society function.

On Saturday, the final morning, the school opened to the public and the students presented their projects based on what they learned during their time on the island. Crowd favorites included a termite experiment, information about the local insect collection sites, the "how-to" instructions on pinning and preserving, and the opportunity to view the exotic insect specimens provided by the OSU Entomology Department.

GEOLOGY

SUMMER BRIDGE PROGRAMS 2012

Groovin' with Glaciers

Directors: Andrew Bruening Ph.D. & Andrew Bloom
Metro Early College Teacher & Linden McKinley STEM Academy Teacher

2012: June 11th – June 16th | Level II

The Concept

Humans alter their behavior in response to their surrounding environment, and environments are altered by human behavior. Kelleys Island exemplifies this co-evolutionary relationship, specifically capturing in its landscape the vagaries of the last Ice Age through glacial scouring and grooves. Human impact on the island simultaneously obscures geologic patterns, exploits geologic formations, and is subject to the immutable pace of geologic time. Through comparative and contrasting study of island formations, participants in this summer Bridge Program explored the relationship between humans, time, and place. The week of rigorous study culminated in a virtual field trip—developed by the students—for the general public of Kelleys Island.

The Story

The second session of the Kelleys Island Bridge Program focused on Geology. This group of students spent several days on the island learning about its unique geological history.

It didn't take long for the students to settle in at Camp Patmos. Bunks were quickly chosen and gear stashed away. Some students, who wandered down to the shore, suddenly felt very far away from home when they realized they could see Canada across the lake.

Andrew Bruening, the lead instructor, designed this session around the concepts of sediment deposition, glaciation, fossil formation, and erosion. Kelleys Island is known for its easily accessible, inactive limestone quarry and glacial grooves, which are both prime examples of the features Dr. "B" wanted to highlight.

The first morning of the Bridge Program, students saw a small area of glacial grooves located right behind their cabin. While it was certainly interesting, and something the students had never seen before, a much larger and more impressive example was waiting for them at the state park. Dr. Bruening explained that this land the students were standing on used to be located in the area now known as the Bahamas. Over millions of years, this land made its way north via plate tectonics and over time layers and layers of sediment were deposited. When the glaciers moved through, the top layers of sediment were scraped off which left behind formations resembling waves of rolling rock. Once part of the ocean floor, fossilized examples of early ocean life forms are easily seen today.

It's a stretch of the imagination to envision what it must have looked like during these different geological stages and the students found it mind boggling that the land they were standing on was once buried under miles and miles of glacial ice.

The other geological feature that makes Kelleys Island a great outdoor classroom for budding geologists is the opportunity to explore both active and inactive quarries. Great deposits of limestone were discovered by early island settlers who turned the excavation of this rock into one of the island's main industries. Armed with rock hammers, the students descended into the abandoned quarry on Kellys Island in search of fossils.

Midweek, the students took a quick ferry ride over to Marblehead, on the mainland, to visit the Lafarge Quarry where limestone is still being excavated, processed, and shipped to construction companies in the Midwest. Students were able to witness a dynamite explosion and watched as the rock was collected and moved across the quarry floor to the immense rock crushing machines. Students were amazed to learn that four million tons of rock are processed and shipped every year from just this one quarry.

During the various expeditions students took notes and shot videos, documenting their experiences. These were compiled into a virtual field trip which was presented, on their last day, to the general public before making its way to their classmates back home.

CULTURAL LANDSCAPES

SUMMER BRIDGE PROGRAMS 2012

Engaging with Environment

DIRECTOR: ANDREW BLOOM
Linden McKinley STEM Academy Teacher

2012: June 18th – June 23rd | Level I

KELLEYS ISLAND, OH

THE CONCEPT

The PAST Foundation's Cultural Landscapes Summer STEM Bridge Program guided students as they explored the interconnectedness of the people who live on Kelleys Island and their natural environment. Students learned about local historical figures and events and the impact those early settlers had on the environment, industry, transportation, and culture. Students interviewed local residents with unique perspectives on past and present island life. During these interviews, the students came to understand how the natural landscape became an integral component in the formation of the island's leading industries. After an introductory class in film production, this information was blended to create the students' final project, a video documentary.

THE STORY

The third week of Kelleys Island Bridge Programs was designed for students to have a true camping experience. Setting up tents proved to be a great team building exercise; not only did the students quickly learn each other's names, but their individual strengths and personalities also became apparent. It was evident from the start that this group was going to get along well and create memories that would last a lifetime.

On their first afternoon, Andrew Bloom introduced the students to the study of Cultural Landscapes, the interconnectedness of the natural environment and the people who live there. The week was filled with opportunities to interview locals and visit island landmarks to get a sense of how the community on Kelleys Island developed over the years. Students were divided into teams and challenged to each take the lead on at least one interview.

The students found that local residents were eager to share historical information. The museum was the first go-to source but, with the help of the locals and some technology, students discovered that many of Kelleys Island hidden gems are identified on the Geocache website, www.geocaching.com. Using GPS coordinates, students explored the Island, discovering along the way many of the sites that make Kelleys Island unique. Students visited the cemetery, Indian Burial Mounds, the glacial grooves, Cameron House, and the abandoned quarry.

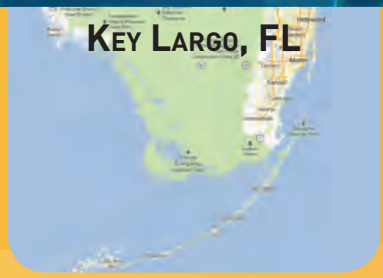
Currently, tourism and commercial fishing are the main industries on the island and students were able to meet with representatives from both industries. A local commercial fisherman docked his boat for a few hours, explaining how the commercial fishing industry has been revived with the implementation of stricter environmental protections that have resulted in a dramatically cleaner Lake Erie.

The natural landscape came alive as students interviewed a local artist who relies on Lake Erie for his livelihood, using glacial erratic rocks from the area as his sculpture medium. Students were both fascinated and impressed by the creativity and skill of his work while meandering through the gallery and sculpture gardens.

During their days on the island, students found that industry, environment, people, and history all connect to create a sense of place. In addition, one element that impacts life on the island, and can't be overlooked, is the weather. During their last two nights on the island the students found themselves driven out of their rain soaked tents seeking shelter in the 'luxurious' comfort of the Kelleys Island school gym. The students welcomed the change of accommodations and greatly appreciated having electricity, which enabled them to recharge their ipods, watch movies, and use the gym's sound system for an impromptu dance party. Everyone agreed it was a fun way to cap off a great week.

MARINE ECOLOGY

SUMMER BRIDGE PROGRAMS 2012



Snorkeling With Shipwrecks

DIRECTORS: SHELI SMITH PH.D. & ANDREW BRUENING PH.D.
PAST Foundation Programs Director & Metro Early College Teacher

2012: July 22nd – July 28th | Level II

The Concept

The fragile ecosystems of the coral reefs are subject to natural and cultural influences that can have detrimental effects. Each year tens of thousands of tourists visit the Florida keys and their impact is substantial. To help protect and understand these fragile ecosystems it is important for scientists to continually collect data to monitor the impact of such events. Students went to several different reef systems where they snorkeled over both natural reefs and shipwrecks to collect their own data. Students were immersed in the cultural and natural resources of the Florida Keys, including shipwrecks, maritime trade, geological wonders, and Coral Sea habitats.

The Story

The Marine Ecology Bridge Program started well before sunrise as a group of Columbus students woke up and gathered their belongings, including the all important ipods and cell phones, hopped in the car, and headed for the Port Columbus airport. For many students, this was an adventure of firsts: the first time away from home, the first plane trip, and the first glimpse of an ocean. It's safe to say that there was a bit of apprehension mixed with excitement, as the students met at the check-in counter and prepared to board the plane.

It ended up being a long day of travel and most of the students were exhausted once they arrived at the Quiescence dorms in Key Largo, Florida. After a good night of sleep and breakfast, the students were eager to try out their new snorkeling gear at Pennekamp State Park. The first day's assignment involved finding "the old Spanish ship wreck" (created by park rangers and sunk 100 feet offshore), then locating, counting, and measuring the ship's cannons. All of this information was recorded underwater on their waterproof mylar clipboards.

After their initial outing, the students met with Cate, from the dive shop, to learn how to identify all the different species of fish they would see in the coming days. Familiar with the unique identifying characteristics of the numerous species, students created nicknames to keep the over 200 types of species from getting jumbled in their minds.

The following morning, the students boarded the boats and headed six miles off shore to their first dive site. The seas were a bit choppy but it didn't deter the kids from enjoying themselves once they reached their destination. The brief episodes of sea sickness were soon forgotten as the students jumped off the boat into the clear blue water and started exploring this new underwater world. Fish, lots of fish, darted from the coral reefs and the debris of old shipwrecks were seen below. Over the next few days students visited famous dive sites such as Captain Tom's Wreck, Molasses Reef, City of Washington, and Christ of the Abyss.

Afternoons were spent on land and the students had the opportunity to visit some of the well known Key Largo area destinations. This provided incredible and meaningful educational experiences for those interested in the concerns surrounding preservation and management of this fragile aquatic ecosystem. Students visited NOAA (the National Oceanic and Atmospheric Administration), the Florida Keys Wild Bird Rehabilitation Center, the Windley Key Geological Park, and a special trip to the Florida Everglades National Park where students had an up-close encounter with an alligator.

For many students, the days in this aquatic classroom expanded their world. With minds miles away from their daily routine, soaking in the experience of this underwater adventure created lasting memories.

FORENSIC ANTHROPOLOGY

SUMMER BRIDGE PROGRAMS 2012

From Crime Scene To Courtroom

DIRECTOR: ADAM KOLATOROWICZ, M.S.

Ph.D. Candidate, The Ohio State University

2012: June 18th – July 13th | Level III

THE CONCEPT

The Forensic Science and Anthropology Field School was an intensive, four-week course with an emphasis on Forensic Anthropology. Students participated in the resolution of a mock medico-legal death investigation from crime scene discovery to courtroom testimony. Throughout the process students received hands-on training by law enforcement, legal professionals, and forensic scientists. Participants improved interpersonal, professional, and public presentation skills; worked cooperatively in a group; employed the scientific method to answer questions related to crime scene reconstruction; learned how scientific disciplines can be applied to the legal system; and distinguished between forensic science as portrayed in popular media, in contrast with the reality of forensic science as practiced by professionals.

THE STORY

The program began with an orientation meeting that released any nervous excitement and anticipation that had been building in the days leading up to the start of the program. Instructors and students got to know each other a little better through a number of fun, ice-breaking activities that garnered a lot of laughs from the entire group. The team building continued the next day as students learned orienteering skills that they would later apply to documenting the crime scenes. Next began a series of visits from legal professionals, law enforcement agents, and forensic scientists who worked with students to train them in specialized methods and techniques to effectively and scientifically build their case. The bulk of the work was completed in the form of hands-on, lab-based activities in which students transformed their textbook knowledge into applied skills. They finally had the opportunity to perform the methods they had previously only seen on television.

The first third of the program focused on training students in the skills necessary to process the mock crime scenes. The middle third involved the actual investigation and collection of evidence. The final third of the program involved students processing evidence to help fit the pieces of the puzzle together. All the while students examined human and non-human skeletal remains, photographed (mock) crime scenes, collected insects from decomposing animal remains, used cadaver dogs and ground penetrating radar to locate buried victims, and reconstructed the living faces of people based on their skulls. In between activities, students visited and received tours of the state crime lab and the county coroner's office. The students attacked each new challenge with vigor and discipline.

The program concluded with a mock trial in Franklin County Common Pleas Court in front of a real judge and practicing attorneys. Each student played the role of a specific forensic expert and was asked to testify as to their involvement in the case. In turn they also played the role of the jury by which guilt or innocence was determined. The students enjoyed the role playing and quick thinking this required, and deftly showed their ability to synthesize data in this context. The four weeks passed quickly, with students digging for bodies and handling rather unseemly artifacts, so the final day in a carpeted courtroom with professional clothing created a victorious atmosphere after the days of toil.

The Forensic Anthropology Field School was implemented in concert with The Ohio State University Department of Anthropology, along with several important partners including The Ohio State University Department of Public Safety, Franklin County Coroner's Office, K9 Response Search & Rescue, Ohio Bureau of Criminal Identification and Investigation, Ohio Valley Archaeology, Inc., and the Franklin County Common Pleas Court.

ROLLER COASTER DESIGN

YEAR-ROUND BRIDGE PROGRAMS 2012

Adventures In Variations Of Velocity

Sponsored by Time Warner's Connect A Million Minds

The Story

Fifteen teams from Ohio and China met on February 1st at COSI for the second annual Roller Coaster Design Challenge. Returning teams from Metro Early College High School pitted their seasoned talent against newcomer teams from Linden McKinley STEM Academy in Columbus, and against four visiting teams from Beijing New Bridge Foreign Language School. The teams had the opportunity to compete in both marketing and actual roller coaster construction. As in the previous year, the object of the challenge was to accurately predict the speed or velocity of the silicone ball traveling along the coaster track and the G-Force exerted at specific monitored points on the track. The closer the prediction to the actual recorded data on each team's three trial runs resulted in higher scores. Students from Ohio State's Engineering Department and OSU's Women in Engineering, led by Brad Okeson of CoasterDynamix™, judged the challenge by setting up the monitors on the tracks and tallying the competitor scores.

> "The object of the challenge was to accurately predict the speed or velocity of the silicone ball traveling along the coaster track and the G-Force exerted at specific monitored points on the track. The closer the prediction to the actual recorded data on each team's three trial runs resulted in higher scores."

Along with the actual build of the roller coaster, a number of teams created marketing plans and presentations about their specific coaster and scientific posters, shown to assembled audiences from COSI, family, and friends. Judges from *Murphy Epson* and PAST scored the participants against a set of challenge criteria. In addition, Junior Judges from Linden Elementary School's sixth grade awarded the Junior Judges Award for excellence in explaining how the roller coaster works to younger students.

Dan Mashalko of WCBE, the Roller Coaster Challenge's Media Partner, served as emcee for the event, encouraging the teams and keeping the audience abreast of each team's accrued results. By early afternoon, the Beijing New Bridge Foreign Language School (BFLS) team, *Tornado*, walked away with first place in the roller coaster challenge. Linden McKinley STEM Academy's team (LMSA), *Big Splash*, took second followed by Metro Early College's team, *Go*, in third. Team's *Go*, *House of the Dead* (LMSA), and *Big Splash* took first, second and third respectively for creation of publishable-quality scientific posters. Linden McKinley STEM Academy swept all three places for the marketing presentations, led by *House of the Dead*, *Big Splash*, and *The Metal Dragon 2000*.

The PAST Challenge team is grateful to all of the partners who made possible the roller coaster challenge creating a wonderful event for kids, judges, and audience alike. Special thanks to COSI and OSU Physics Department, along with OSU's Engineering Department, OSU Women in Engineering, OSU Scholars Program, Battelle STEM Innovation Networks, Murphy Epson, The Ed Council, The Gravity Group, CoasterDyamix™, Great Coasters International, and WCBE.

SPRING FLING

YEAR-ROUND BRIDGE PROGRAMS 2012

Trebuchets and Targets

Sponsored by Time Warner's Connect A Million Minds

The Story

The 2012 Spring Fling Design Challenge, sponsored by Time Warner's Connect A Million Minds, was held on May 16th at Whetstone High School.

The Spring Fling Design Challenge encouraged students to utilize a systems and design approach, model critical thinking skills, engage in applied learning, and collaborate. Spring Fling activities promote transdisciplinary, problem-based learning by pivoting on Renaissance-era activities, engaging students in science, math, engineering, strategy, language arts, and fine arts. Students participating in this year's event had the opportunity to compete in the following design challenges:

Siege Machines (trebuchets and catapults): students transported the machines, built at their respective schools, to the "battle field", where they launched water balloons to test accuracy, distance and precision.

Globe Performances: students modernized a Shakespearean play of their choice and performed it in front of an audience of their peers, parents, and a panel of judges.

Heraldic Banners: students designed beautiful banners, displaying 21st century skills.

Castle Siege Strategy Game: students incorporated medieval battle strategies in the design and creation of a castle siege board game. The games were played during the event, and judged by the Columbus Area Boardgaming Society.

Roughly 200 students, from grades 4-12, participated in this year's event. Teams from Linden McKinley STEM Academy, Reynoldsburg eSTEM Academy, Baldwin Road Junior High, Gateway Gifted Academy, and Pickerington Central High School worked hard, enjoyed the multi-school competition, and all proudly represented their respective schools. Special thanks to Dan Mushalko from WCBE, who emceed the event, and to all staff at Whetstone High School who helped make it a flawless event.

GEM MURALS

YEAR-ROUND BRIDGE PROGRAMS 2012

Artistically Transforming Community

Funded by The Women's Fund of Central Ohio

The Story

In 2012, The PAST Foundation started the Girls Empowerment Mural (GEM) project, funded through a grant provided by The Womens Fund of Central Ohio.

The GEM program began with educators, community members, and female students brainstorming together on how they could empower young women in the Linden community. The goals of the program are to change the perception of girls' roles in the community, redefine their place in Linden, and provide a unifying voice for young women to be agents of change. The program is meant to open up possibilities for young women looking to engage in, and take ownership of, meaningful work.

The program got off to a great start when world-renowned mural artist Olivia Gude came to Columbus to work with Linden educators to share her experiences to help design the start of the GEM program. From there The PAST Foundation and teachers worked with students to brainstorm ideas about how they could become change makers in their community. Students answered the question "How can you create change, in your home, your school, and your Linden community through art making?".

The five GEM high school leaders designed and created panels on recycled boards. The group of student leaders came together once a week to brainstorm ideas and discuss how they would take on such a project. Along the way they recruited the help of fellow students, educators, and artists. In the end their concepts ranged from young women combating cyber bullying to creating safe and clean community spaces for all. The leaders are immortalized in portraits through out the panels, but more importantly, will continue to inspire change through the dialogue their paintings ignite.

> "The goals of the program are to change the perception of girls' roles in the community, redefine their place in Linden, and provide a unifying voice for young women to be agents of change. The program is meant to open up possibilities for young women looking to engage in, and take ownership of, meaningful work."

In addition to the creation of the panels for the 2012 GEM program, another permanent mural was created by 5th grade students at Linden STEM Academy and a couple of the LSMA high school leaders. The Linden STEM Academy mural addresses peace in the Linden community. Every 5th grade student created a piece of the mural and has imagery represented on the wall piece. Students worked with their art teacher, artists, GEM leaders, and other community members to successfully convey their message of peace and their vision for the Linden community.

The GEM project will continue in 2013, and the next phase has already begun. GEM leaders are taking their message and process into the community by working to help facilitate mural programs in each of the four elementary schools, as well as designing and creating an outdoor piece that will be part of the Linden Community Transformation.

ROBOT COMPETITION

YEAR-ROUND BRIDGE PROGRAMS 2012

Geeks, Gadgets, and Games

Sponsored by Central Ohio Robotics Initiative

The Story

In the spring of 2012, the Central Ohio Robotics Initiative (CORI), became a program of The PAST Foundation. Expanding over the last three years, CORI was looking for a new home and the goals of both PAST and CORI were complementary and synergistic.

CORI was originally created as a business and education based collaborative working with youth in the Central Ohio region, to cost-effectively amplify and spread existing, competitive STEM programs. These programs have proven to increase the number of students seeking, and graduating from, college STEM programs. To date CORI has hosted three off-season events and helped start and mentor at least nine new teams, which more than doubled the number of teams in central Ohio over the last three years.

Key CORI Program Objectives

- Help schools increase performance and decrease costs in STEM education
- Increase interest and proficiency in STEM skills, particularly among underrepresented student populations
- Foster a STEM talent pipeline as a key driver of the local and state economy

Since its inception, CORI has hosted three hugely successful robotics competitions in Columbus. The competitions are an off-season replica of the FIRST Robotics Competitions. (FIRST – For Inspiration and Recognition of Science and Technology – please see http://www.usfirst.org/).

The robot competitions are a combination of a technology-based sporting event with robots, a rock concert and well... geeks! Each year, in early January, students receive an engineering challenge and specifications of the robot's competitive task. Over the next six weeks, teams around the country design, build, and test their 100+ pound robot in preparation for the regional event.

Off-season events give teams who compete in the FIRST Robotics Competition an opportunity to continue to test, re-design, and tweak the robots used during the school year. It also allows less experienced and new members of the team to gain more experience with the robot. The off-season event, graciously supported by Connect a Million Minds and Time Warner Communications, is held in late June. Students from around the region converge in Columbus for an exciting weekend of competition, collaboration and gracious professionalism.

Each time CORI helps to get a new robotics team started, one of the existing schools mentors the new team, sharing knowledge, experience, advisor information, and collaborative work time.

With all its success hosting events and starting robotics teams, CORI is most proud of the students. These amazing young people, some of who are the brightest of the bright and others who may have "slipped through the cracks" of the educational system, together found relevance for what they learn in the classroom.

CORI organizers see the real impact of their work when these students enter college. The students' professors have told CORI that the program's students know what engineering is about, and already know how to use needed equipment. Also, professors indicate that CORI students are more likely to stay in their STEM program. In addition, these students are more likely to get internships because hiring companies know that FIRST students can work as a team under pressure.

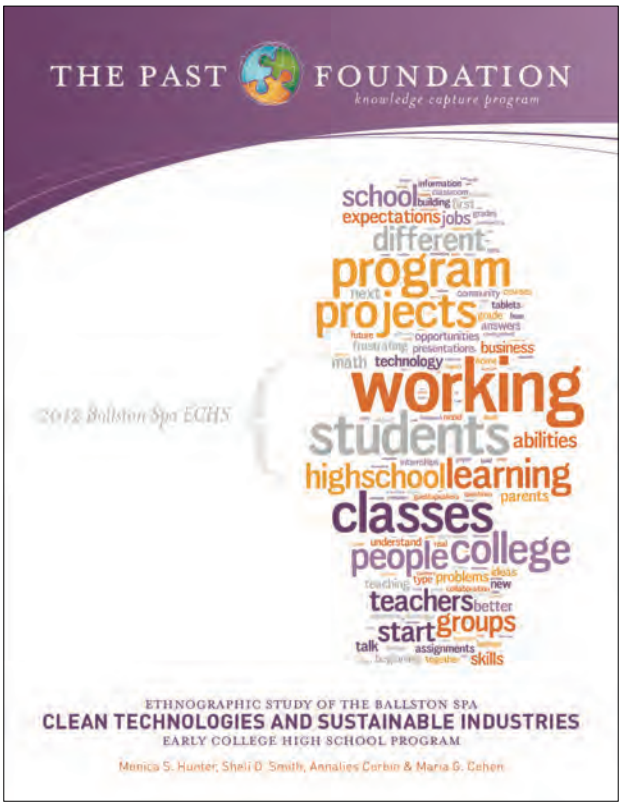
The PAST Foundation is excited to welcome CORI and looks forward to many successful events.

PAST *in the* FUTURE

UPCOMING BRIDGE PROGRAMS

PAST *in* PRINT
SELECTED RESEARCH

Ethnographic Study of the Clean Technologies Sustainable Industries Early College High School

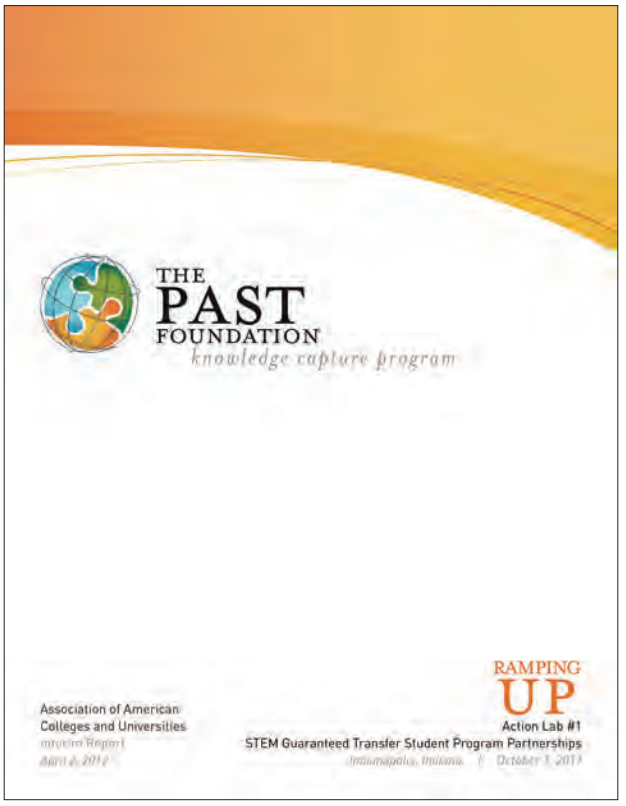


by Monica S. Hunter, Sheli O. Smith, Annalies Corbin, and Maria G. Cohen

This project conducted with Ballston Spa Central School District delivers an ethnographic analysis of the pilot year of the Early College High School. Work includes focus group and survey analysis of data collected from students, parents, teachers, and program partners. PAST Foundation's Knowledge Capture Program piloted a comparative analysis of focus group data with survey data. Essential differences show survey data has value in documenting individual perceptions of program participants and when aggregated shows the range of individual expectations of the program. Focus group data provides an in-depth perspective of issues explored more fully through group dialogue that informed real-time course correction implemented for the 2012-13 school year by the school district.

A second phase of work to continue the ethnographic research during year 2 of the program has been proposed for the 2012-13 school year.

Ramping UP: Action Lab 1 STEM Guaranteed Transfer Student Program Partnerships



by Monica S. Hunter and Maria G. Cohen

Conducted in collaboration with the Association of American Colleges and Universities (AAC&U) and funded by the Gates Foundation, this collaborative effort was launched in August of 2011. Research focused on analysis of a six-state planning process to implement 4-year / 2-year higher education partnerships for "guaranteed STEM transfer student programs." Formal ethnographic research activities were initiated in October 2011 with the AAC&U convening, Ramping Up: Action Lab 1. An interim report submitted January 2012 integrated the results of follow-up interviews with each of the six-state teams. The final report was provided to AAC&U in April and was incorporated as a stand-alone document in the final submittal to the grantor, The Bill and Melinda Gates Foundation. In December 2012, AAC&U and the PAST Foundation discussed a plan to create an online report based on the ethnographic analysis to be published and disseminated nationally to AAC&U members in 2013.

A second phase of work to produce a joint online publication in 2013 has been proposed.

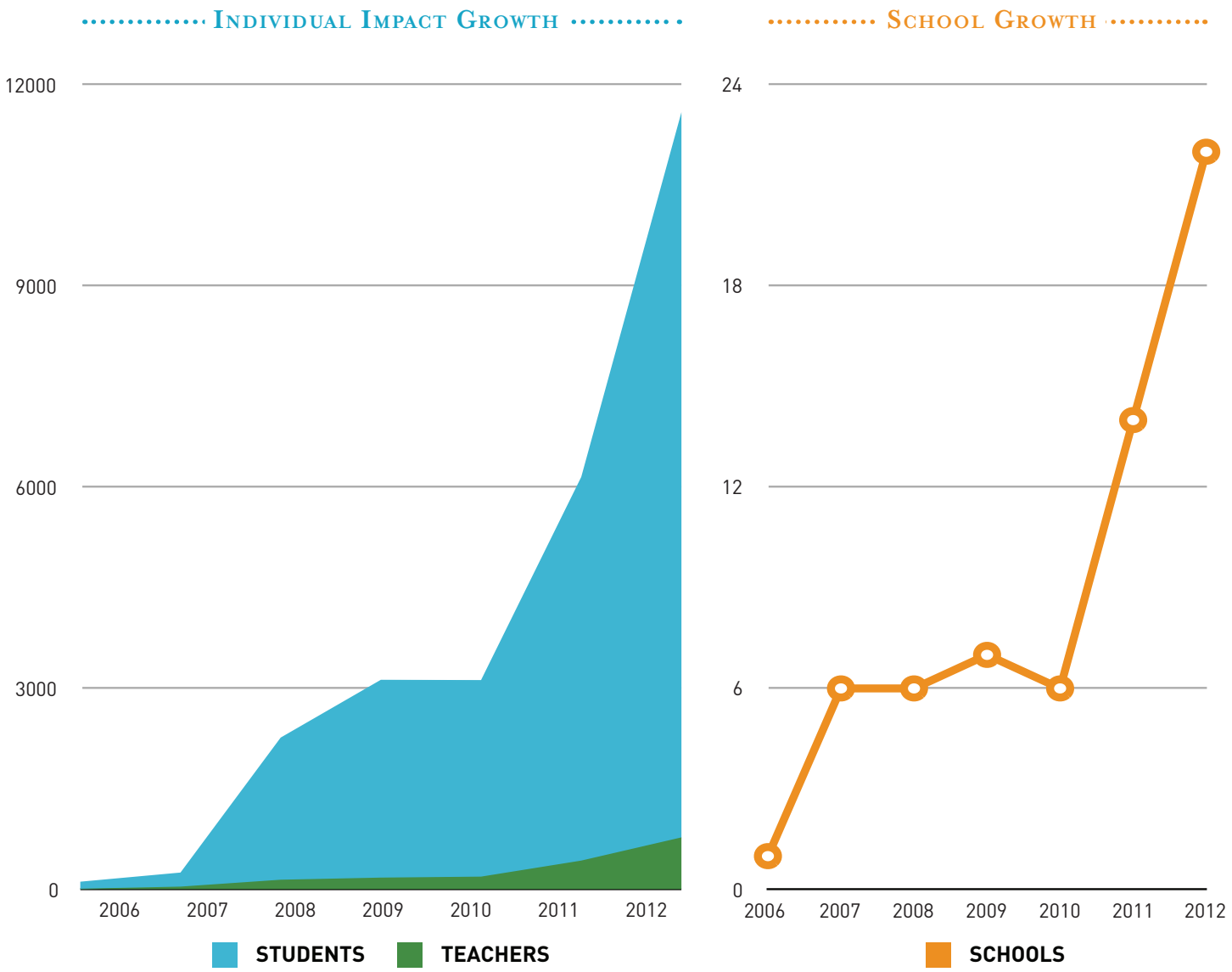
PAST *in* NUMBERS
EXPONENTIAL GROWTH IN THE TPBL MOVEMENT

Transforming education to embrace transdisciplinary problem-based learning (TPBL) requires a significant paradigm shift on a national scale. This is not a goal that will be achieved overnight, and it will require a concerted effort from many schools, districts, and communities over many years. It is this context that makes our growth in recent years so exciting.

The PAST Foundation's reach has never been greater. In the past 3 years, the number of students and staff that have been directly affected by the development work we do has increased nearly four times over, to a total of almost 12 thousand students and staff in 2012. And the number of schools we impact has nearly tripled in the same time period.

This exponential growth is further evidence of what we've always believed: that TPBL is a foundational element of the solution to the growing dissatisfaction with the status quo in education. Our growth in recent years is indicative of the success of the international movement toward problem-based learning.

This growth also means great things for our future—as more schools, teachers and communities experience the benefits of the paradigm shift, their enthusiasm creates a "ripple effect," spreading the message to even more schools, which results in faster adoption in connected communities. This quicker spread means more students benefiting faster from the PAST professional development model of STEM TPBL.



PAST *in* NUMBERS
FINANCIAL REPORT

		2012	2011	2010
	Beginning Cash Balance	$129,886	$132,556	$99,234
Annual Revenue	Contributed	$25,867	$17,944	$157,676
	Earned	$1,326,938	$985,501	$524,697
	Total Revenue	$1,352,805	$1,004,135	$700,560
Annual Expenses	Education Programs	$1,113,242	$767,768	$505,308
	General Operating	$122,576	$117,944	$90,699
	Total Expenses	$1,235,818	$885,712	$737,577

PAST *in* 2012
ONGOING SERVICES

Ethnographic Knowledge Capture

Understanding local culture is critical to successful educational reform. Ethnographic Knowledge Capture coalesces community voices reflecting common threads of understanding and unique community perspectives informing decision making and revealing challenges and barriers in the system that need to be addressed. Culturally relevant educational design connects students and teachers with local community and industry. Ethnographic Knowledge Capture informs planning and partnering processes so that the underlying systems reflect the entire community and are as robust as possible. Anthropology provides avenues for real-time and agile course correction that is key to program growth and sustained success.

Professional Development

Combining a transdisciplinary approach that de-silos education with STEM design principles that address real world issues enables PAST to partner with teachers, schools, communities, and industries to build programs that are engaging and sustainable. PAST professional development guides P-16 educators through a replicable process in building problem-based learning programs that are engaging yet rigorous, exciting and relevant.

Bridge Program Development

Utilizing out-of-school programs to grow skills and knowledge helps students bridge plateaus of understanding, ushering students from one level of thinking or behaving to the next and from one level of inquiry and engagement to the next. PAST has successfully built bridge programs that help students embrace problem-based learning, delve into real world issues and enjoy stewardship.

STEM Educational Reform, Propagation, Scalability, and Sustainability

Helping teachers, schools and communities build programs that transform educational systems into 21st century learning centers is essential to moving educational reform forward. The PAST Foundation is engaged at national, regional and local levels in developing and understanding educational transformation. This enables us to listen to the unique tenor of a community, thereby providing tangible and relevant insight into methods of change.

PAST *and* NEW METHODS

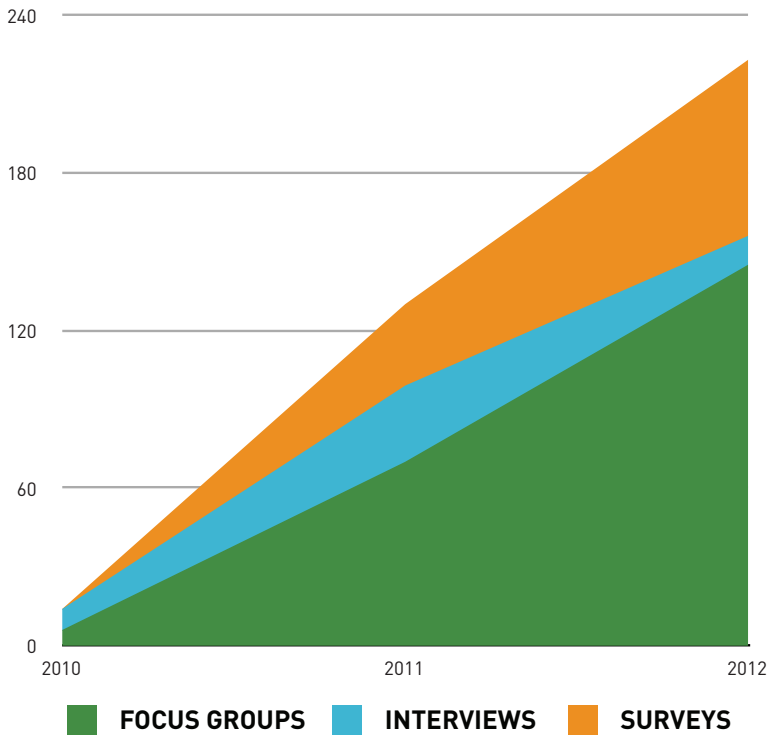
KNOWLEDGE CAPTURE ADDS ONLINE SURVEY COMPONENT

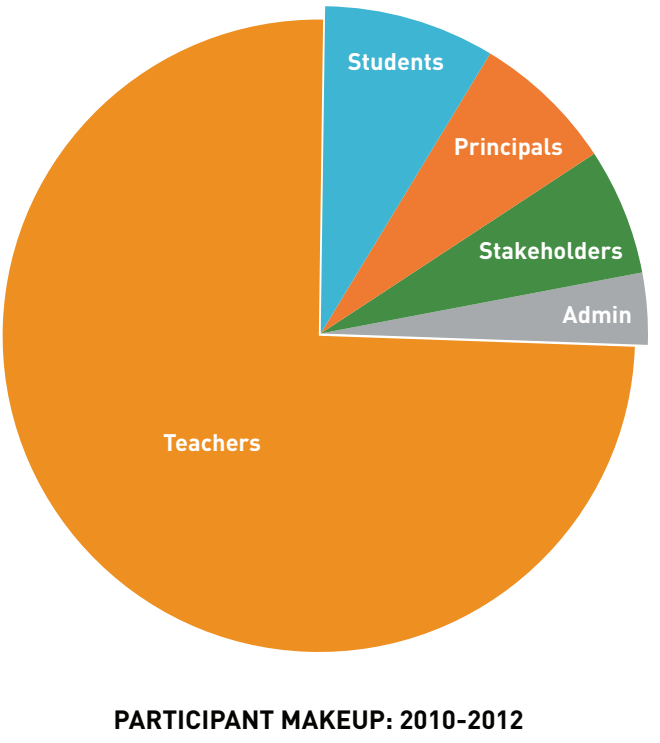
In 2012 the Knowledge Capture Program initiated a new dimension to our research, expanding KC data gathering to include online surveys. Survey analysis generates graphic representations that build on a rich understanding of focus group and interview generated stakeholder issues. Bringing surveys to the internet allows for asynchronous collection of valuable data from sources that might otherwise be unable to participate in the research.

This careful and strategic suite of research tools supports PAST's continuing efforts to provide "real time course correction" recommendations, a unique element of our engagement with school transformation. The addition of online surveys also represent PAST's own continued real-time evolution toward individualized program support and a tailored approach for guiding successful TPBL transformation.

> "…representing PAST's continued real-time evolution toward individualized program support and a tailored approach for … TPBL tranformation."

Knowledge Capture Participants





PARTICIPANT MAKEUP: 2010-2012

PAST *and* FRIENDS
PARTNERS IN CHANGE

Advisory Council on Underwater Archaeology
American Indian Institute for Innovation
American Tall Ship Institute
Armour School District, South Dakota
Avondale Elementary School, Ohio
Ballston Spa Central School District, New York
Battelle Memorial Institute
C&C Technologies
Cadaver Dogs
Chocolate Café
Cleveland Heights - University Heights School District
Columbus Africentric Early College
Columbus Attorney General's Office
Columbus City Schools, Ohio
Columbus Community Foundation
Columbus Green Building Forum
Columbus State Community College
COSI
Crow Creek School District, South Dakota
Dana Elementary School, Ohio
Dayton Regional STEM School, Ohio
Education Service Center
Envision STEM
Florida Keys National Marine Sanctuary
Florida Public Archaeology Network
Focus CFO
Friends of Metro
GearUP
Grange Insurance
Greater Linden Development Corp.
Hamilton STEM Academy, Ohio
Hunter Neil Company
I Know I Can
Indigo Strategies
Junior Achievement
Kelleys Island School District, Ohio
Lexmark
Linden McKinley STEM Academy, Ohio
Linden STEM Academy, Ohio
Lower Brule School District, South Dakota
Marty Indian School, South Dakota
MC2 STEM High School, Ohio
MediaFLOW
Metro Early College and Demonstration High School, Ohio
Metro Robotics Team
Mid Central Education Cooperative, South Dakota
Minerals Management Service - Rigs to Reefs Program
Montana State University, Bozeman
NASA
National Math & Science Initiative
National Science Foundation
National Science Resource Center
NOAA Office of Ocean Exploration and Research
North Dakota State University
Ohio Bureau of Criminal Investigation
Ohio Department of Education
Ohio Department of Natural Resources, Division of Natural Resources and Preserves
Ohio Education Council
Ohio Energy Project
Ohio Resource Center
Ohio STEM Learning Network
Ohio University
Platte-Geddes School District, South Dakota
Porcupine School District, South Dakota
Quiescence Diving Services
Sanford Health
Society for Historical Archaeology
Solid Waste Authority of Central Ohio
South Central School District, South Dakota
South Mifflin STEM Academy, Ohio
Special Focus Spectrum
Spectrum Lighting
Springer Science & Business Media
St. Stephen's Community House
Starling Middle School, Ohio
Sullivant Elementary School, Ohio
T-STEM
Teaching Institute for Excellence in STEM
The Ohio State University
Time Warner Cable
Valley City State University
Valleyview Elementary School, Ohio
WCBE Public Media
Wessington Springs School District, South Dakota
West Broad Elementary School, Ohio
West High School, Ohio
Westgate Elementary School, Ohio
Westmoor Middle School, Ohio
Whole Foods Market
Wickliffe Progressive Community School, Ohio
Windsor STEM Academy, Ohio
Women's Fund of Central Ohio
Wright State University

PAST *and* FRIENDS
BOARD OF TRUSTEES

Sandra Stroot, PhD
Board Chair
The Ohio State University

Richard D. Rosen
Vice Chair
Indigo Strategies

Michael O'Sullivan
Board Treasurer
Cardinal Health

Terri S. Erdman
Board Secretary

Judge Teresa Liston, RET.
Trustee

Andrew Bruening, PhD
Trustee
The Metro High School

Donald J. Weir, RPA
Trustee
Commonwealth Cultural Resources Group

Karen McClain
Trustee
The McClain Group, LLC

Keene Haywood, PhD
Trustee
University of Miami

Dennis Aig, PhD
Trustee
Montana State University

Jerry Lewis
Board Consultant
Executive Service Corps of Cincinnati

PAST *and* FRIENDS
FOUNDATION STAFF

admin

Annalies Corbin
President and CEO

Yana Belan
Executive Assistant

Knic Pfost
Marketing & Publications Manager

Sarah Pariser
Programs Assistant

Diana Wolterman
Accounts Manager

Steve Martindale
Consultant with FocusCFO

programs

Sheli O. Smith
Director of Programs

Beth Witte
Bridge Programs Coordinator

Kat Deaner
Lead STEM Coordinator

Casey Bailey
STEM Coordinator

Brian Coffey
STEM Coordinator

Elliot Mork
STEM Coordinator

Ketal Patel
STEM Coordinator

Sylvia Street
STEM Coordinator

Lori Trent
STEM Coordinator

research

Monica S. Hunter
Director of Research

Maria Green Cohen
Research Associate

Meghen Matta
Research Assistant