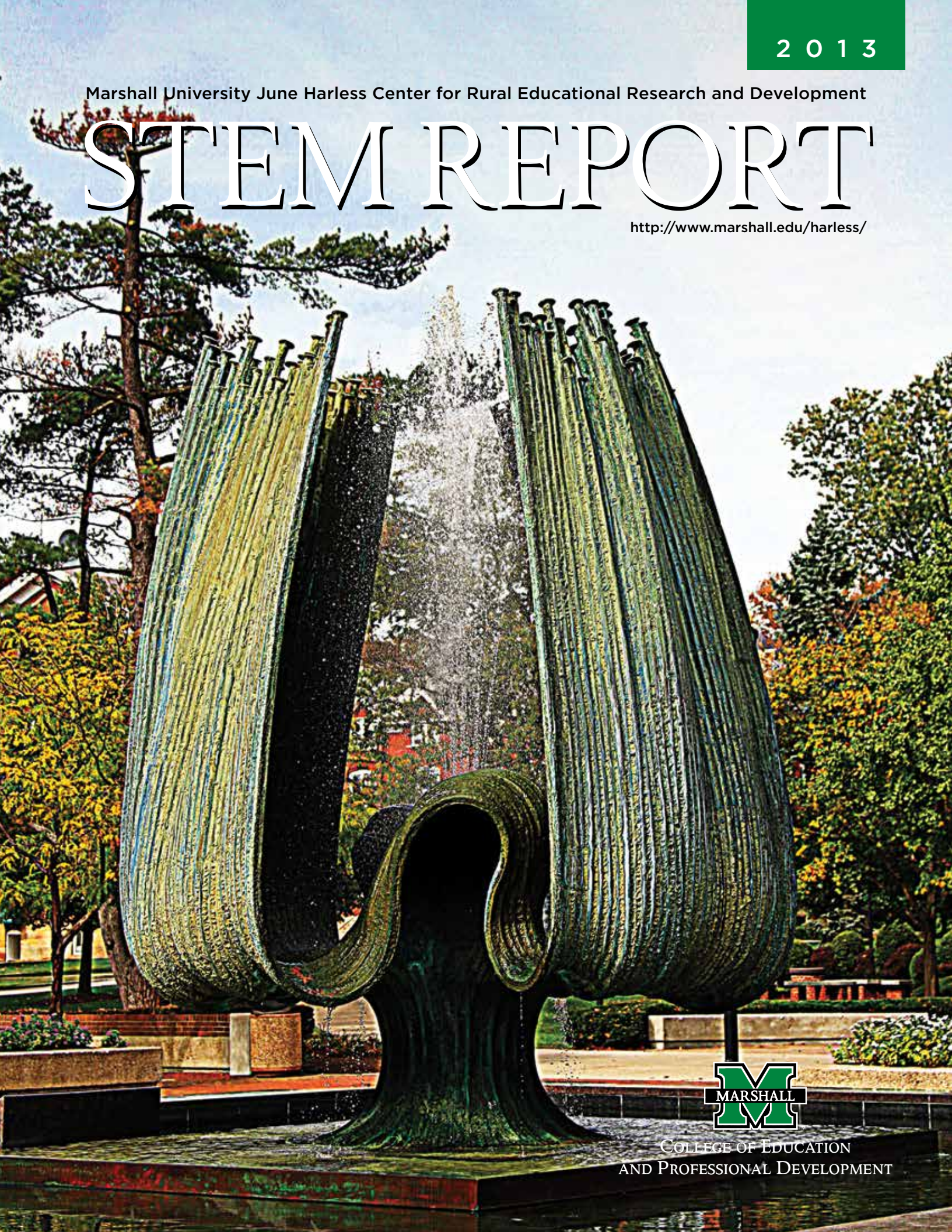


2013

Marshall University June Harless Center for Rural Educational Research and Development

STEM REPORT

<http://www.marshall.edu/harless/>



COLLEGE OF EDUCATION
AND PROFESSIONAL DEVELOPMENT

Partnerships Forged For Improvement

The mission of the June Harless Center from its inception has been to provide leadership in educational initiatives for West Virginia educators and students. Over the years partnerships have been forged with twenty-four counties in West Virginia in order to embed research based best practices in the teaching and learning components of schools and school systems. Some of the recent work has been focused in Cabell, Lincoln, Randolph, Logan, Roane and Nicholas Counties.

The work at Geary Elementary/Middle School, Roane County included monthly professional development sessions for faculty including an in-depth review of brain-compatible strategies. Using the resource, *Worksheets Don't Grow Dendrites* by Marcia L. Tate and other resources, the Harless Center staff facilitated the study and classroom implementation of instructional strategies that maximize memory, engagement, and learning for every student.

The collaborative work at Guyan Valley Middle School and Hamlin Pre-K-8 was an extended project aimed at increasing the engagement of students in the classrooms and assisting the teachers in transferring the content and pedagogy of professional development sessions into their classrooms.

The partnership with Beverly Elementary in Randolph County has been in place for several years and has

included a study of positive school culture, horizontal and vertical teaming, best practices, mathematics, The Project Approach, and a study of *An Ethic of Excellence* by Ron Berger. *The Harless Center Retrofit: Strengthening schools to excel in the 21st century* was used to identify needs of educators and students and to develop a plan for the professional development sessions. The most recent work has been an introduction to place-based experiential learning experiences.

The staff members of the Harless Center have worked collaboratively with the administrative team in Nicholas County to establish a support system for the teachers at Cherry River Elementary School. The most recent work has focused on a partnership with first grade teachers in best practices in literacy instruction.

A summer institute for Buffalo and Holden Elementary teachers, Logan County, provided sessions for pre-k through fourth grade teachers. The topics included hands-on science activities, and *The Project Approach*. The teachers and administrators spent several weeks participating in an on-line book study of *An Ethic of Excellence* by Ron Berger. A plan is in place for sessions with all Logan County pre-k teachers and administrators. Those teachers will be visiting the Marshall University Early Education STEM Center to study the Reggio-inspired classroom. The Harless

Center staff will also deliver professional development in Logan County and at school sites.

A partnership among Cabell County, the Harless Center and the Expeditionary Learning Network has paved the way for the Incubator School planned for opening in the fall, 2015. A design team has been established, funding sources explored and preliminary publicity of the vision for the school has been initiated. Cabell teachers, administrators and Harless staff have visited Expeditionary Learning schools and attended two national conferences. Staff members from EL have visited the county and Marshall University to confirm the commitment and capacity of the partnership between Cabell County and the Harless Center.

Another partnership with Cabell County Schools and the Save the Children organization has been the provision of graduate assistants to support the very successful Spring Hill Elementary After School Program. The graduate assistants serve as mathematics tutors for first graders who participate in the expanded school day.

These county and school partnerships have been purposefully established to focus on benefits for teachers, administrators and students. The goal of the work is ultimately higher student achievement as a direct result of highly effective teachers and highly motivated and engaged students in relevant and rigorous assignments.

TABLE OF CONTENTS

Appalachian Math-Science Partnership Concludes Six Years Of Service	4
Adding The "Arts" To Stem	6
Hallie Harless Distinguished Teacher Award Recognizes Excellence In Teaching	7
Flipped Classroom Partnerships	7
Inductees Into The Harless Hall Of Fame 2013	8
Collaborating To Create Beautiful And Inspired Learning Spaces	10
Partnering To "Demystify" Math And Science	11
Shewey Science Academy	12
Satellite Network Growth Fuels Student Success	13
Transforming Transitions In Early Childhood: Developing A True Partnership For Success	14

Message from the Director



Dr. Stan Maynard, *Executive Director*

"The purpose driven professional development should focus our efforts in order to replicate a culture of excellence in every school in West Virginia. ."

Purpose driven professional development is a concept whose time has come. I believe that the best example that I can share is that of the "canary in the mine shaft." Student achievement is analogous to the canary in the mine shaft. If the canary dies, it signals that something is terribly wrong in that shaft. It is not the canary's fault. It is the environment in that mine that needs adjustment, and the people in charge and the workers in the mine need to change that environment or disastrous consequences will occur. Student achievement in our state has placed West Virginia in a very unenviable status. How do we change the culture and working conditions for our children? There is not one simple solution, but there is one important tool that we have at our disposal



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– purpose driven professional development.

The important phrase is "purpose driven." What purpose? I believe you have to take individuals into a metaphorical mine shaft and show them how a metaphorical mining operation can be accomplished and still keep the "canary" alive and well!

The Marshall University's June Harless Center staff and the Cabell County School System leadership together with the Expeditionary Learning representatives have embarked on a mission to create an Incubator School that demonstrates creative educational research on leadership, teaching, student engagement, and community partnerships. The main function of the partnership is to establish an environment in which student achievement is not just average, but an environment where "excellence" is not just a cliché but a way of life.

Educators will participate in a residency program of one week or more to become fully immersed in the best practices and strategies that Expeditionary Learning promotes and will be demonstrated in the Incubator School. In the evenings educators will spend time at the Perry Family Educational Leadership Center's cottages to discuss the day's events and how the resident

educators will incorporate such a culture of excellence in their home school.

The Incubator School will be a "leadership laboratory" enabling good educators to become "excellent craftsmen." Leadership is not solely a principal's responsibility but is a joint responsibility of all stakeholders. The "leadership laboratory" will provide exemplary experiences for school board leadership, superintendent leadership, central office leadership, building administrator leadership, teacher leadership, community partner leadership and student leadership.

The purpose driven professional development should focus our efforts in order to replicate a culture of excellence in every school in West Virginia. This culture of excellence will enable the "canary" to thrive and not become a negative statistic. Is this possible? There exists a network of 167 Expeditionary Learning Schools nationwide, which will support the progress of the Incubator School projected to open in the fall, 2015. I believe West Virginia will set the standard for how purpose driven partnerships can improve educational data and inspire students and educators to embrace excellence in educational leadership.

PURPOSE DRIVEN PROFESSIONAL DEVELOPMENT: A TRANSFORMATIONAL PROCESS

PURPOSEFUL PARTNERSHIPS (PreK-16):

- WV Department of Education
- Rahall Transportation Institute
- Robert C. Byrd Institute
- Marshall University
- Carnegie Mellon University
- West Liberty University
- Women's Education Forum
- WV Counties
- Benedum Foundation
- Business Partners (Frontier, Huntington Museum of Art, Verizon)
- RESA II

PURPOSEFUL BEST PRACTICES (PreK-16):

- Flip the Classroom
- Reggio – Inspired Classrooms (PreK current; PreK-5 2015)
- STEAM instruction
- Technology Integration
- Transition (home to PreK, PreK to K)
- Global Studies
- Foreign Languages
- English/Language Arts
- Expeditionary Learning

CABELL COUNTY/HARLESS EXPEDITIONARY LEARNING INCUBATOR: PreK (current), PreK-5 (2015)

www.elschools.org; www.marshall.edu/stemc

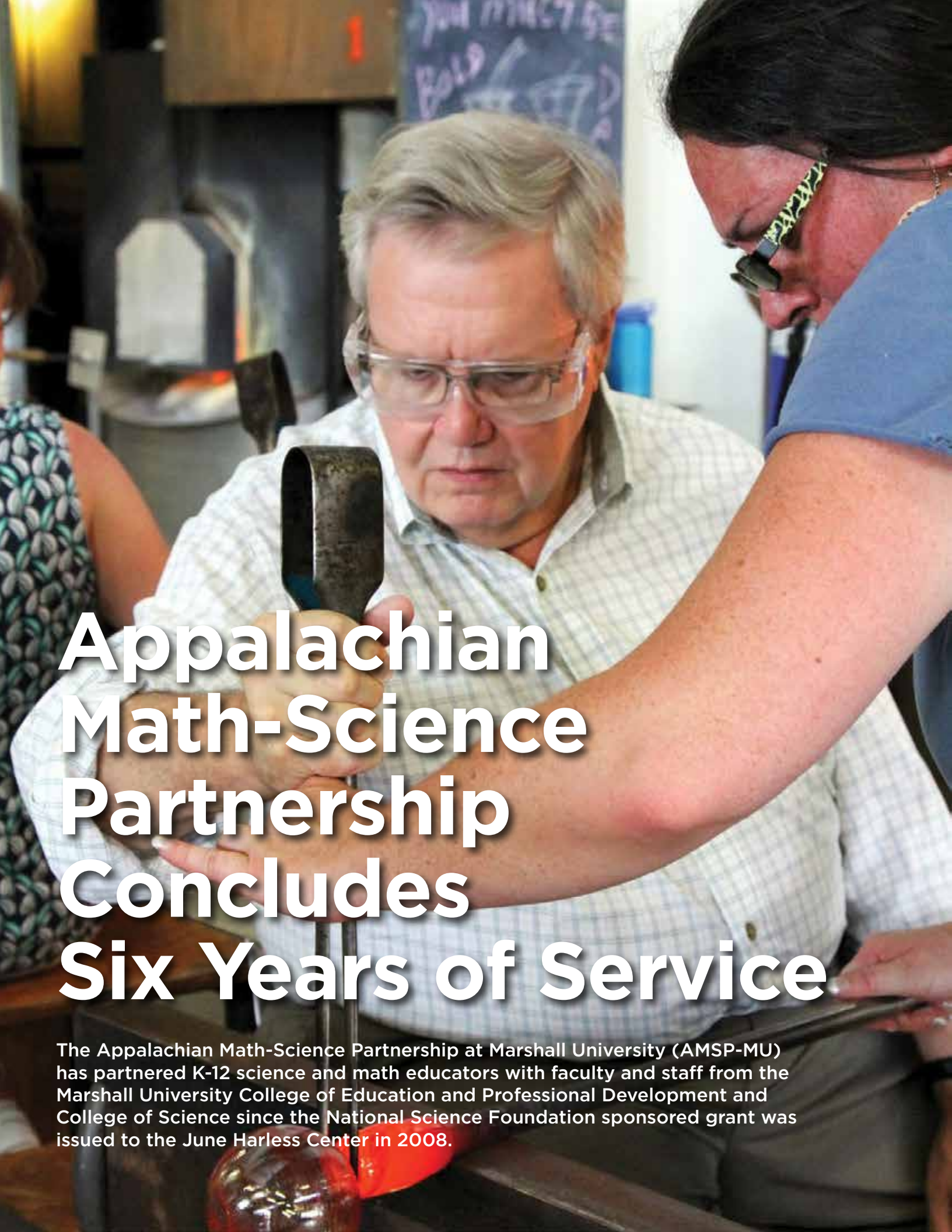
PURPOSEFUL HIGH QUALITY PROGRAMS (PreK-16):

- Perry Family Educational Leadership Center (Residency Initiative)
- Extended Enrichment Programs: Afterschool Initiatives
- CREATE Satellite Robotics Program (www.marshall.edu/harless/project/Satellite)
- Early Education (PreK) STEM Center (www.marshall.edu/stemc)

PURPOSEFUL DIFFERENTIATED PROFESSIONAL DEVELOPMENT (PreK-16):

- Relevant, needs-driven based on Harless Retrofit Process
- Consistent follow-up
- Onsite Support
- Accountability of Implementation
- Inclusion of all stakeholders (Administrators, Educators, Families and Students)

Like us on Facebook to follow how the Harless Center is impacting education in WV!



Appalachian Math-Science Partnership Concludes Six Years of Service

The Appalachian Math-Science Partnership at Marshall University (AMSP-MU) has partnered K-12 science and math educators with faculty and staff from the Marshall University College of Education and Professional Development and College of Science since the National Science Foundation sponsored grant was issued to the June Harless Center in 2008.



A primary goal of all AMSP-MU activities has been to build capacity among local educators to sustain continual improvement and enhanced student outcomes when funding is no longer available. The increased teacher content knowledge and pedagogical skills will far outlive the scope of the AMSP-MU grant.

AMSP-MU has targeted math and science teachers in Braxton, Cabell, Mason, Mingo and Wayne Counties, pre-service educators and faculty in Marshall University's College of Education and Professional Development and faculty from the College of Science. At each AMSP-MU activity, whether a professional development session, professional conference or implementation with K-12 students, the collaboration among educators of all backgrounds is evident. Marshall University pre-service educators have been an integral part of all AMSP activities; thus, helping to shape the knowledge and skills of emerging educators as they prepare to enter the teaching profession.

Each year, school districts developed a partnership plan to build on the shared goals of increased educator capacity, improved student outcomes in mathematics and science and better pre-service teacher preparation. Although each district used an approach that was unique to that county, the AMSP goals remained the same.

Using remaining funds from the project in 2013, AMSP-MU focused on Cabell and Mingo Counties. Cabell County's project was a math and science

focused interdisciplinary study of West Virginia's glass and composite materials industries. This project built on prior projects on West Virginia's coal, rail and forest products industries. In this project teachers dedicated an entire semester to a graduate level course on the math and science of glass and the glass industry. Then in July 2013, they undertook a seven day in-depth study of how this industry shaped the economy, ecology and history of the state.

Mingo County elected to focus their AMSP-MU professional development on basic mathematics for middle school students using simple machines and robotics. Twenty-two middle school teachers spent six weekend sessions interacting with the mathematics of

simple machines and how to increase student understanding and retention of the math concepts. Following the professional development from AMSP, these same Mingo County teachers held the Shewey Science Academy and were able to put their training into practice.

Although funding from the National

Science Foundation expired in September 2013, AMSP-MU projects will continue to have a positive impact on students through the capacity built in educators, the preparation of pre-service teachers

and the improved student outcomes. The June Harless Center continues to explore funding from NSF and other sources to continue AMSP initiatives in partner schools and districts.



Adding the “Arts” to STEM

The weather this summer was “STEAMy!” More than 100 children from ages three to fourteen attended June Harless Center’s 2013 summer camps and experienced how much fun adding the “Arts” to STEM learning can be at any age. With the support of the Rahall Transportation Institute, Huntington Museum of Art, and the West Virginia Department of Education and the Arts, children had experiences in robotics, art, theatre and nature. Six weeklong camps were offered: Pre-Bot, Bee-Bot, Experimenting with Science, Arts & Bots, Nature Camp and Theatrical Arts & Bots.

Pre-Bot and Bee-Bot

Pre-K through second grade children were introduced to pre-robotics concepts by investigating the STEAM notions found in the children’s literature, “The Three Little Pigs.” The Harless Center staff worked with the Huntington Museum of Art and the Carnegie Mellon CREATE Lab to provide a high-quality learning environment filled with innovative activities that promoted robotics exploration. Children engaged in activities in which they were asked to create, design and build. Some of this year’s camp activities included:

- Children’s Innovation Project - allows children to make connections to objects in their world through disassembling toys, identifying and then re-purposing and reconfiguring their internal components into new inventions.
- Hello Robo! - a robotics kit that promotes hands on activities to help students build and use simple robotics.
- Arts and Bots – a set of electronic components including circuit boards, LEDs and motors which children used to build wolf and pig robots.



Experimenting with Science

The goal of the Experimenting with Science camp was to get children excited about science by engaging them in hands-on research and experiments. Children spent each day of camp participating in various experiments that helped them answer their daily research question. Research questions included, “What’s in Space?” and “Who has the Energy?” At the end of the week, children showcased what they had learned to their parents by demonstrating one of their favorite experiments.

Arts & Bots

This year’s Arts & Bots camp was based on Skylands, an adventure game world played with action figures. Children used the engineering process to research, design and name their own unique Skylander character. Then they used art supplies, circuit boards, LEDs, motors, and sensors to build and program their Skylander robot to perform a “superpower” and recite a motto.

Nature Camp

The Huntington Museum of Art utilized Harless Center Arts & Bots kits in two weeks of nature camp. Children spent the morning observing nature – animal tracks, flora and fauna – and the afternoon building a robot inspired by their observations. Completed robots included a horse, bird, dog and monkey.

Theatrical Arts & Bots

The Harless Center partnered with the West Virginia Department of Education and the Arts to conduct a “Theatrical Arts & Bots Camp” at the West Virginia Cultural Center. Children built robots of their own design using Arts & Bots kits. The experience was inspired by the vision



of WVDEA Secretary Kay Goodwin and enhanced by the contributions of Sally Hazard, classroom teacher, RJ Haddy, theatrical makeup and animatronics expert and theater arts teacher, Kris Corbett.

Future Camps and After School Activities

The Robert C. Byrd Institute (RCBI), the Huntington Museum of Art (HMOA) and the Rahall Transportation Institute (RTI) will partner with the Harless Center in future camps and after school activities. RCBI and HMOA will be offering Arts & Bots and RTI will expand their LEGO activities.



Hallie Harless Distinguished Teacher Award Recognizes Excellence in Teaching

The Hallie Harless Distinguished Teacher Award is presented annually. The prestigious award is made possible by the generosity of Mr. and Mrs. James Harless (Buck and Hallie). The award represents not only their generosity, but also their passion for exemplary classroom instruction for all students of West Virginia and especially Southern West Virginia. The monetary award is presented annually to an outstanding teacher from Boone, Lincoln, Logan, McDowell, Mingo, Wayne or Wyoming counties for his or her effectiveness in the classroom, diligence to the craft and obvious love and commitment to young people.

This year the award was presented to Mrs. Joni Shortridge, a special education teacher at Guyan Valley Middle School

in Lincoln County, West Virginia. She is skilled in utilizing co-teaching models and differentiated instruction to maximize student learning in the classroom. Joni's belief in her students' ability to achieve is evident as she utilizes 21st century technology and teaching strategies. Joni received a Bachelor of Science, Communication Disorders at Marshall University in 2006. She became certified in Multi-Categorical Special Education at West Virginia University in 2012, and earned a Master's Degree in Special Education from Marshall University in 2013.

Joni describes the role she most often performs for students as that of "caregiver." She writes, "The minute those students walk through my creaky door for the first time, we are bonded." She goes on to write

that she sees "so much through their eyes: pain, fear, failure, perseverance, and hope. Hope that someone cares. Hope that they matter. Hope that they can change the vicious cycle that so often happens in their community." And so, for eight hours a day, Joni fulfills the role of guardian, disciplinarian, counselor, role model, teammate, and reliable figure. She makes them feel safe and loved. She tells her students, "While the past has helped shape you, your future is what will forever mold you! So, leave the past where it shall lie and focus on being the best you can be for your future."



The previous awardees represent a number of Southern West Virginia Counties:

2006 • Ms. Tonya Hatcher
Riverside Elementary School
Mingo County

2007 • Mr. Doug Martin
Mingo Career and Technical Center
Mingo County

2008 • Ms. April Adams
Kellogg Elementary School
Wayne County

Ms. Robin Ellis
Gilbert High School
Mingo County

2009 • Mr. Jonathan Escue
Lincoln County High School
Lincoln County

Ms. Kristy East
Anawalt Elementary School
McDowell County

2010 • Ms. Heather Woods Lockhart
Mount View High School
McDowell County

2011 • Mr. Dan Gottron
River View High School
McDowell County

FLIPPED CLASSROOM PARTNERSHIPS

The June Harless Center has initiated a project that has tremendous potential for West Virginia educators. The project is entitled "Flip Your Classroom." The initial idea came from a conversation between a Mason County teacher and a Harless staff member. The teacher had heard about the flip concept and was interested in attempting some form of it in his high school classroom. It was that brief conversation and an interest from one teacher that catapulted the strategy to a "proof of concept" initiative led by five outstanding STEM educators, three from Cabell County, Loretta Hayes, Bonnie Conner and Jason Jackson, and two from Mason County, Rob Grady and Lewis Marcum. In studying the concept for use in their classrooms they found that the flipped classroom consists of students watching brief, five to seven minute, teacher recorded video presentations for homework and completing their hands on assignments, labs, and tests in class with their teacher available for facilitating individual and small group learning. It provides a framework that enables teachers to effectively personalize the education of each student.

The training and implementation efforts over the past year demonstrated very positive outcomes that resulted in a decision to continue and expand the project. The pilot study consists of seventeen teachers from four counties: Cabell, Lincoln, Mason and Wayne. The anticipated results of the pilot study have potential for increasing the number of teachers from the pilot counties as well as additional counties to join the effort to provide more engaging classrooms.

The partnerships that are evolving beyond the county school district efforts have been unexpected but rewarding. Two partnerships in particular should be noted. An interested group of women in the Tristate area have formed an organization entitled WE, West Virginia Women's Education Forum. Their fund raising efforts will provide much needed resources for teachers and students who need assistance in taking the "Flipped Classrooms" to new levels of success.

Judge Dan O'Hanlon, Vice Chancellor for Technology and the Director of WVNET, the state agency that provides Internet to college campuses, has provided advice and encouragement to the educators involved in the "Flipped Classrooms" initiative. His support and leadership will enable this program to ultimately become a statewide educational opportunity for all teachers and all students interested in increasing the instructional time and student engagement in their classrooms.

Inductees into the Harless Hall of Fame 2013

Individuals selected for induction into the Harless Hall of Fame have spent a lifetime providing creative leadership for educators and business and community organizations. This creative way of thinking about life and work is celebrated every year at the Harless Hall of Fame event, an evening of recognition for individuals who have committed to improving the possibilities for West Virginia educators, families and children."

—Dr. Stan Maynard



Governor Gaston Caperton

Gaston Caperton is the former president of the College Board and a former two-term Governor of West Virginia. A native of Charleston, West Virginia, Governor Caperton attended the University of North Carolina, where he earned a Bachelor's degree in business. After college, he returned home to join the family business. Under his leadership, the McDonough-Caperton Insurance Group became the 10th-largest

privately owned insurance brokerage firm in the United States. He also owned and operated a bank and a mortgage company.

After a successful business career in finance and insurance, Gaston Caperton was elected Governor in 1988, and quickly revolutionized West Virginia's education system. During the eight years of his administration, the average teacher salary went from 49th in the nation to 31st; he launched one of the country's earliest and most comprehensive basic skills computer initiatives; and he invested more than \$800 million into building, modernizing and improving school facilities throughout the state. Under his leadership the unemployment rate was its lowest in 17 years, total investment by new and expanded businesses increased by more than \$3.9 billion, and an aggressive program of international trade missions was conducted to promote the export of WV products.

Governor Caperton taught at Harvard and Columbia Universities before becoming president of the College Board in 1999. He assisted in transforming the century-old institution into a mission-driven, student-first operation promoting college success and opportunity for all Americans. During his 13 years of leadership, nearly 27,000 lives of high school and college students were touched, the importance of writing was promoted

by adding a writing section to the SAT and the number of students succeeding in Advanced Placement doubled. His leadership also renewed the organization's focus on education in a globalized marketplace including a new series of AP world language and culture courses and the founding of the Chinese Language and Culture Initiative.

During the more than 20 years in government and education, Governor Caperton has chaired the Democratic Governor's Association and the Southern Regional Education Board, participated in the Executive Committee of the National Governors Association, received ten honorary doctoral degrees and been presented with numerous awards, including the 2007 James Bryant Conant Award for his significant contributions to the quality of education in the United States and the 1996 Computerworld Smithsonian Award for his tireless efforts to introduce technology into the classroom. Most recently, he was honored as the 2012 Policy Maker of the Year by the National Association of School Boards of Education. He retired from the College Board in 2012. Governor Caperton currently sits on the Board of Directors of three major US corporations.



Mr. and Mrs. Michael Perry

Mike and Henriella Perry are co-founders of the Heritage Farm Museum and Village, which consists of more than 16 reconstructed log and other buildings. The Village is dedicated to West Virginia's Appalachian ancestors and focused toward educating school children and their families about the ingenious and creative way of life of those strong

and courageous people. Mike and Henriella began dating in high school and through four years of college. They were married upon his graduation from Marshall University. They moved to Morgantown, West Virginia, where Mike graduated three years later from the West Virginia University College of Law, first in his class and Order of the Coif. In 1961, the Perrys returned to Huntington where Mike began practicing with a distinguished law firm. Their daughter, Michele Marie, was born the same year followed by another daughter, Melanie Lynn, in 1964 and a son, Audy Michael Perry, Jr. in 1971.

In 1973, Mike and Henriella Perry moved with their three children, ages 12, 10 and 2, from a beautiful brick home in Huntington to a burnt log cabin on a 150-acre farm. It had no indoor plumbing, no central heat or air conditioning and only one strand of electricity. Now, 40 years later, the Perrys have developed Heritage Farm Museum and Village where six museums, five log homes, a log church, blacksmith shop, one-room schoolhouse and several meeting facilities surround their first farm home, visited by thousands of school children, who learn more about the strong Appalachian past in order to aspire for a rewarding future. Mike has been a key leader in the WV business, education, and health communities throughout his career. He and his wife have many accomplishments and tributes attached to their names. As a result of their persistent work, Mike and Henriella were awarded the Donald R. Myers Humanitarian award by the Appalachian Regional Commission in 2010.

They have endeavored together to develop an enduring legacy for many generations to better understand our heritage and those people who persevered through many hardships, so that we might enjoy the quality of life that is ours. The story of Mike and Henriella focuses on the Four "F's" – Faith, Family, Friends and Farm (the same name as the recent book written by Mike and Audy Perry). In light of all the accolades they have earned through the years, that focus is their true legacy.



(CREATE) lab and head of the Robotics Masters Program in The Robotics Institute at Carnegie Mellon University. His current research projects explore community-based robotics, including educational and social robotics and ways to use robotic technology to empower individuals and communities.

Illah has authored a book, *Robot Futures*, which focuses on a new species of robots. According to Dr. Nourbakhsh, future

robots will have superhuman abilities in both the physical and digital realms. They will be embedded in our physical spaces, with the ability to go where we cannot, and will have minds of their own, thanks to artificial intelligence. They will be fully connected to the digital world, far better at carrying out online tasks than we are. In *Robot Futures*, Illah imagines a future that includes adbots offering interactive custom messaging; robotic flying toys that operate by means of "gaze tracking"; and robot-enabled multimodal, multicontinental telepresence. In his book he follows each glimpse into the robotic future with an examination of the underlying technology and an exploration of the social consequences of the scenario.

The CREATE Lab's researchers under Illah's leadership lead diverse projects. Those projects include the application of GigaPan technology; the ChargeCar, a community-based effort to convert gasoline cars into locally customized electric vehicles; Hear Me, a project that uses technology to empower students to become leaders in advocating for meaningful social change; Arts & Bots, a program for creative art and robotics fusion in middle schools; Message from Me, a new system of communication between pre-k children and their parents to improve home-school consistency; and BodyTrack, an empowerment program that enables citizens to capture behavior, health factors and find ways to improve their well-being. The CREATE Lab's programs have already engaged more than 23,000 people globally, and the CREATE Satellite program is forging additional CREATE lab partners in new geographic zones.

While on leave from Carnegie Mellon in 2004, he served as Robotics Group lead at NASA/Ames Research Center. He was a founder and chief scientist of Blue Pumpkin Software, Inc., which was acquired by Witness Systems, Incorporated. Illah earned his bachelors, masters and PhD in computer science at Stanford University and has been a faculty member of Carnegie Mellon since 1997. The National Academy of Sciences in 2009, named him a Kavli Fellow. He is the author of more than 100 publications including journals, books and chapters and holds thirteen patents.



Dr. Illah R. Nourbakhsh

Dr. Illah R. Nourbakhsh is Professor of Robotics, director of the Community Robotics, Education and Technology Empowerment

There is a new feel at the Marshall University Early Education STEM Center; a creative and relaxing feel, where children are blossoming. The lighting is different, the space is different and the atmosphere is relaxing and beautiful. So how does this sort of learning environment exist? The answer can be summed up by three reasons – partnerships, opportunities and hard work.

In the fall of 2011, the collaborative partnership among the West Virginia Department of Education, the Marshall University Early Education STEM Center, and Cabell County Schools expanded. The MUEE STEM Center director, Tarabeth Brumfield and studio educator, Brea Wiles, were chosen to participate with other Cabell County preschool educators in a study abroad program funded by the West Virginia Department of Education and

organized by West Virginia University. The purpose of this study abroad program was to travel to the world-renown early childhood education programs of Reggio Emilia, Italy and neighboring cities to observe, learn, and understand the philosophy of this approach. At the same time, the MUEE STEM Center partnered with West Liberty University to research the impact that creative learning spaces have on student learning.

These experiences could have concluded with these exciting experiences, but the team at the MUEE STEM Center began implementing the new techniques and philosophies. The inspiration of the staff led to a complete transformation of the learning environment in the classroom. Yes, the physical space looks completely refreshed by natural tones and soft lighting, but the approach with children is also tangibly different. Focusing on the



In the art studio, a child takes a digital picture of her "beautiful stuff" creation.



Collaborate Create Beautiful and Learning



While exploring the outdoor environment, children use magnifying glasses to inspect nature.

Reggio-inspired principles is changing the way learning occurs and is assessed. These principles include the belief that:

- Children are capable of constructing their own learning.
- Children form an understanding of themselves and their place in the world through their interactions with others.
- Children are communicators.
- The environment is the third teacher.
- The adult is a mentor and guide.
- Emphasis is on documentation of children's thoughts.

Loris Malaguzzi, the father of the Reggio-Emilia Approach, stated, "Our task, regarding creativity, is to help children climb their own mountains, as high as possible. No one can do more." As the needs and interests of the children within each community will be different, no two Reggio-inspired communities should look the same. Nevertheless, the Marshall University Early Education STEM Center is on an educational journey inspired by the schools of Reggio Emilia, Italy. The staff's greatest purpose is to



Children eat a family style meal at the MU Early Education STEM Center.

support children as they climb their own mountain and set a learning atmosphere that also inspires creativity. Without the partnerships of Cabell County Schools and the West Virginia Department of Education, the opportunity provided by Marshall University, West Liberty University and West Virginia University and the hard work of the staff, none of this would have been possible.

PARTNERING TO "DEMYSTIFY" MATH AND SCIENCE

"Math and science are the engines of innovation. With these engines we can lead the world. We must demystify math and science so that all students feel the joy that follows understanding."

- Dr. Michael Brown

In the Spring of 2012, the June Harless Center, in partnership with Cabell, Mason and Lincoln Counties and Marshall University, developed a comprehensive professional development and implementation plan that would support teachers as they "demystified" math and science for their elementary-aged students. The project, titled Project Math and Science Success (Project MASS), was awarded an Improving Teacher Quality Grant from the WV Higher Education Policy Commission. The focus of the work was to introduce teachers to high-quality curricular material, Full Option Science System (FOSS), and offer support services as the materials were implemented in classrooms. The FOSS curricular program is designed to make hands-on science engaging for teachers as well as students. Hands-on science is intrinsically fun and interesting for all students. Most teachers can be superb science teachers when they are provided with effective instructional materials and the professional development to use those materials.

The grant funding allowed the partners to place FOSS kits that heavily integrate science and mathematics Next Generation standards in the hands of 3rd, 4th and 5th grade teachers in Cabell, Mason and Lincoln counties. The Project MASS staff - two Marshall professors, master teachers from Cabell County with

(Continued on page 14)

**Partnering to
Inspired
Spaces**



Shewey Science Academy

Since 2008 the June Harless Center has partnered with Mingo County Schools to conduct the Shewey Science Academy for middle school students. From the first year, with only 50 students at one school, the academy has increased in size and impact every year.

Throughout the school year, Mingo County teachers partner with staff from the June Harless Center and the Marshall University College of Science to develop engaging lessons and activities to stimulate interest in mathematics and science among Mingo County students in grades 5 through 9. Through research and professional development, the teachers plan and prepare for a week-long summer academy that is open to all middle school students in Mingo County for no fee. The summer academy is based in Next Generation science and mathematics content and seeks to provide a high degree of student interest and promote critical thinking, problem solving and creativity.

In 2013 the Shewey Science Academy was held in three locations in Mingo County (Gilbert, Lenore, Delbarton) from June 17-20. The Shewey Science Academy Staff was primarily middle school science and math teachers from Mingo County assisted by June Harless Center staff. In addition, pre-service and newly graduated teacher candidates from Marshall University's College of Education and Professional Development worked closely with the Mingo County teachers to implement the instructional activities. The goal of the 2013 Shewey Science

Academy was to gain mathematics skills using LEGO robotics. Students were required to combine teamwork and problem solving skills and use mathematics and science to build, program and troubleshoot robots in order to accomplish a series of tasks in a "green city" using sustainable energy sources. The week culminated in a competition with the students' robots in the constructed town to see who could build a sustainable energy system. Teachers, parents and community members attended the competition and closing activities.

In addition to the Mingo County teachers, Marshall staff and students, the 2013 Shewey Science Academy utilized four Mingo County high school students who were alumni of previous years' academies. These students assisted the teachers and students in getting full advantage of the projects.

"The true value of the Shewey Science Academy will be seen when these bright young people enter science and technical careers."

—Dr. Stan Maynard

According to Dr. Stan Maynard, Director of the Shewey Learning and Research Center, "Through the generosity of the Shewey family a strong partnership has been built between Marshall University and Mingo County Schools. The ultimate beneficiaries of this partnership are the students of Mingo County who are engaging in mathematics and science. The true value of the Shewey Science Academy will be seen when these bright young people enter science and technical careers. The impact of the generosity of the Shewey family will have an impact on generations of people in Southern West Virginia."





Satellite Network Growth Fuels Student Success

not otherwise accessible or familiar to the lab's existing outreach team, to the table as meaningful co-participants involved in shaping future technology not yet created. Projects currently being disseminated include GigaPan, Arts & Bots, Children's Innovation Project and Message from Me. GigaPan enables students to take panoramic images of their communities and activities and share them with peers across the world. Arts and Bots integrate technology, literature, and history through the use of familiar art supplies, circuit boards, lights, motors and sensors. Students design, build, and program robots that tell the stories of literary and historical characters and events while promoting technological literacy and informal learning.

In September 2011, an official partnership was established between Marshall University's June Harless Center and Carnegie Mellon University's CREATE Lab. This partnership provides the June Harless Center's network of rural Appalachian schools continuous and seamless access to technologies and ideas generated at the CREATE Lab in Pittsburgh.

As a CREATE Lab satellite, the June Harless Center has brought a rural network,

The Children's Innovation Project aims to engage young children in exploration and innovation with technology. Children explore and learn about electricity and simple circuits through hands-on engagement with a kit of components designed for young hands. Message From Me enables young children to better communicate with parents and caretakers about their daytime activities at childcare centers through the use of digital cameras, microphones, email, phone messaging and

other technologies.

According to Dror Yaron, Director of Outreach for the CREATE Lab, the partnership has been invaluable. "We are fortunate to have the team at the June Harless Center bring their educational expertise to our team and empower educators to see the potential in community robotics

education. Besides the educational value, they are also making the programs locally relevant for West Virginia and representing rural West Virginia as a partner in the development process of our technologies, providing feedback and meeting needs every step of the way."

As a result of this successful partnership funded by the Claude Worthington Benedum Foundation, students and teachers in Cabell, Wayne, Lincoln, Putnam, Kanawha, Mason, Mingo, Logan, Randolph, and Nicholas Counties have participated in cutting edge technology and professional development not otherwise accessible in their communities. The Harless CREATE Satellite has also teamed with the Huntington Museum of Art to offer Arts & Bots professional development and summer camps with plans for future expansion.

The CREATE satellite model has recently grown to include West Liberty University, West Virginia University, Carlow University in Pittsburgh and ASSET STEM Education. This network of interstate universities and organizations shows a promising future in the way that pre-service and in-service teachers are prepared using engaging, hands-on technologies that promote critical thinking as well as citizen scientists.



PARTNERING TO “DEMYSTIFY” MATH AND SCIENCE

(Continued from page 11)

several years of FOSS implementation experience, representatives from Cabell, Mason and Lincoln Counties and the Harless Center staff - designed a training program to prepare teachers for implementation and to provide support. An intensive week long training, held in June 2012, addressed science and math content and pedagogy. Upon completion of this training, teachers received one FOSS kit to implement in their classroom during the 2012-2013 school year. Follow-up sessions conducted throughout the school year provided teachers with support from both their colleagues and the project staff.

The grant concluded in the summer of 2013 with a 3-day training. Participants engaged in an additional grade level specific FOSS science kit. Teachers worked together to understand the activities, match activities to the Common Core Standards in math and science and explore technologies that would support their students' learning. With technology being such a major component of the new Common Core Standards, the project provided participants with cost effective technology tools that would be beneficial to their students.

The partnership between the Harless Center, Marshall University and the three partnering counties provided teachers with a level of support that is not commonly found in a prek-12 educational professional development setting. Teachers were able to work with Marshall professors and Harless staff to receive content and pedagogical instruction and guidance. More importantly, they were able to receive collegial support from fellow teachers from different classrooms, schools and counties. Teachers shared ideas, problems, and solutions, and in turn, created a support system among them that is not only sustainable, but also invaluable to the participating educators.

Transforming Transitions in Early Childhood: Developing a True Partnership for Success

According to Jamie Vollmer in *Schools Can't Do it Alone*, 53 million children pour off the buses each day - 88% of the nation's school-aged children – the raw material of the educational process. It is the largest number of public school students in American history. All of them are bursting with potential. When talking to families of children who are preparing to go to school for the first time you may hear phrases like, unsure of what to do or what to expect. For most parents, sending their child into the “never-never land of schooling” is an exciting but anxious time. So, to capitalize on any transition, whether it is from home to school or one classroom to another, our task as educators is to empower families by providing a seamless message. For this reason the Transforming Transitions project was created.

The June Harless Center in partnership with Cabell County Schools and the West Virginia Department of Education (WVDE) collaborated to establish a program to assist counties in preparing high quality transition processes from preschool to kindergarten. The Claude Worthington Benedum Foundation provided financial support for the “Transforming Transitions” grant, which in its first year has engaged administrators, teachers, families and children.

Five schools and community partners were recruited and 35 Cabell County teachers and school administrators and families took part in professional development to make the transition between grades more effective. Based on the WVDE framework for school readiness and transitions, the project provided participants with a unified understanding of developmentally appropriate best practices. Research focused on implementing high quality practices was reviewed by teachers to collaboratively plan transition summer camps.

A critical feature of the Transition Program was the renewal of the home-school alliance. The benefits generated from this true collaboration are much more powerful predictors of student success than improved standards, sanctions, national testing or any other regulatory approach.

This pilot project was developed for the purpose of supporting early childhood teams in West Virginia counties as they work on continuous improvement regarding school readiness. In the second year of the project the Harless Center staff plans to host a symposium to address the program's successes and challenges, and expand the program to more schools within Cabell County and recruit a second county partner.

Beginning school is a critical time for young children, their families, and educators. Stephen Covey articulated the compelling urgency – “We only get one chance to prepare our students for a future that none of us can possibly predict.” He then poses a critical question. “What are we going to do with that one chance?” He challenges us to work together to ensure that every child has the opportunity to reach their full potential. The Transforming Transitions project provides a venue to connect families and educators in a true partnership to guarantee we meet this challenge.



*'Buck' has always believed
in the importance of education
and has been a generous benefactor
of educational initiatives including
the June Harless Center
for Rural Educational Research
and Development.*



James “Buck” Harless

James 'Buck' Harless has always supported and encouraged the initiatives of the June Harless Center for Rural Educational Research and Development named in honor of June Montgomery Harless, one of Southern West Virginia's most avid supporters of education and medical research. June and 'Buck' built Gilbert Hardwoods, located in the heart of the West Virginia coal fields, into a successful international company, which resulted in countless individuals and organizations benefiting from their philanthropic efforts. They both were instrumental in the development and construction of a unique \$8.8 million center, the Larry Joe Harless Community Center, named for their late son and believed by many to have changed the very face and culture of southern West Virginia.

'Buck' has always believed in the importance of education and has been a generous benefactor of educational initiatives including the June Harless Center for Rural Educational Research and Development. The mission of the June Harless Center, which reflects the philosophy of both 'Buck' and the late June Harless, is to provide leadership in education initiatives for West Virginia educators and students. The Center provides educators and families of rural West Virginia with a support system that addresses educational problems, initiates and sustains school improvement, and provides innovative and creative programming for Pre-K through grade 12 students, teachers and administrators. The Center staff members have developed exemplary programs in professional development in every curricular area and in numerous delivery methods as well as instructional programs for students that provide for exciting, engaging and productive classrooms. These programs and many others represent a salute to 'Buck' and Hallie for their unwavering support of the June Harless Center and its outreach to students, teachers, administrators and families across West Virginia.



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