Creating Tomorrow's Scientist

An Examination of Project Scientist Academy 2013

Abstract:
Project Scientist is an education non-profit devoted to addressing the challenges and disadvantages women and girls face in science, technology, engineering, and mathematics (STEM). This past summer the first public Project Scientist Academy was piloted at Queens University of Charlotte. The Academy is a summer camp that creates a community of like-minded girls, ages 4-12, and engages them in an exceptional STEM learning experience using the Project Scientist Approach. This approach is the result of extensive research, consultation, and conversations with leading experts in STEM and education. It includes a real life lab and science setting at a reputable university that provides girls the confidence and vision to conceptualize their future as a university student or STEM professional, small class sizes, a diverse student population with an emphasis on identifying and recruiting girls with an aptitude, talent and passion for STEM, a focus on hands-on and experiential learning, interaction with female STEM professionals as mentors, enrichment activities that tie to the arts and design, and familial engagement.

Programming was developed based on extensive research and incorporated pre- and post evaluations that included the Draw-A-Scientist-Test (DAST), an open-ended projective test designed to investigate children's perceptions of a scientist. Revealed in this paper is Project Scientist's initial data, which indicated that in less than a week of learning amongst a community of like-minded others and inspiring female role models girls, as young as four, demonstrated an expanded understanding of "who" a scientist is, what "types" of individuals become scientists and the diverse range of careers and occupations that are considered STEM. Girls went from seeing a scientist as a gender-specific role to being something open to all genders and were able to then visualize themselves in similar roles one day. Teachers learned that building a community of like-minded individuals through teams and pairs was effective at bolstering confidence and enthusiasm in a girl's ability and passion for STEM.

Introduction

Project Scientist is an education non-profit whose mission is to engage and empower girls with a passion, talent or aptitude for science, technology, engineering, and math (STEM). Project Scientist is a manifold organization with many programs devoted to addressing the challenges and disadvantages women and girls face in each phase of their academic and professional STEM careers. These challenges include an underrepresentation of women in STEM education majors, executive and non-executive positions in STEM industries, and a lack of community amongst female professionals and students within the field. A key component of Project Scientist is Project Scientist Academy. Project Scientist Academy is a summer camp that identifies and engages girls, ages 4-12, gifted in science, technology, engineering, or math. Held on a university campus students are immersed in a captivating and authentic STEM experience through a tailored curriculum facilitated by highly skilled and credentialed educators, field trips that align with current lessons, and daily interactions with women STEM professionals from a variety of fields that help them discover the endless opportunities available to them in STEM.

Building, both, a sustainable program and impact Project Scientist is intent on identifying, engaging, and empowering girls derivative of all socio-economic backgrounds that demonstrate an aptitude for STEM. Providing services to both paying and scholarship clients enables Project Scientist to not only address the overall underrepresentation of women in STEM, but also allows for the inclusion of students from traditionally underrepresented socio-economic backgrounds through the organization's scholarship program. By offering scholarships to students from low-income and minority demographics, Project Scientist creates opportunities for a segment of the population that faces an opportunity gap across a multitude of areas due to often obscure and impermeable social barriers. Historically these demographics have been faced with often obscure and impermeable social barriers, which have proved to, not only hinder the quality of education provided for minority youth but also dictate the height at which such individuals' set their academic aspirations and evaluate their capacity for achievement. Focusing on attitudinal development, mentoring, and family engagement Project Scientist generates opportunities for individual social mobilization by fostering an environment that cultivates self-discovery, self-confidence, and encourages girls to envision themselves in non-traditional roles and fields that open new educational and career trajectories for them.

Context: Why STEM and Why Girls

Project Scientist was born out of the personal experience of its founder, Sandy Marshall. While a student in a college science course, Sandy was discouraged by the scarcity of female classmates and the lack of support. As a result she found herself, like so many females do, changing her focus of study. While working as the Executive Director of The NASCAR Foundation, Sandy witnessed and became educated on the lack of STEM programming available for girls. Committed to addressing these inequalities, she organized a summer learning experience for her daughter and several other area girls. Out of these humble origins, Project Scientist was launched.

While making up about half the workforce, women hold less than 25 percent of STEM jobs and hold a low share of STEM degrees, particularly in engineering.[i] This underrepresentation has been pervasive and persistent for over a decade. An in-depth look at higher education also reveals disparities. For instance, in the 2008-2009 school year at community colleges, women represented 56.8 percent of all people with associate degrees, and earned 62.1 percent of all associate degrees; however, men comprised at least 70 percent of graduates in engineering, mathematics, and computer science.[ii] Extending this examination to school age attitudes, an American Society for Quality poll of 8 to 17-year-olds revealed that 24 percent of boys said they were interested in an engineering career, versus 5 percent of girls.[iii] This information, combined with societal and media stereotypes perpetuating the idea that women should not be interested in science fields, further solidifies the need for programs like Project Scientist.

Women represent an opportunity to expand STEM employment that is crucial to developing U.S. competiveness in these fields. STEM careers also represent an opportunity for women to earn higher salaries. On average, women earn $36.34 per hour in STEM jobs – higher than the $19.26 that women earn, on average, in other occupations.[iv] Science and engineering occupations are projected to grow at more than double the rate (20.6%) of the overall U.S. labor force (10.1%) through 2018.[v] That is why Project Scientist has placed a strong emphasis on introducing girls at an early age to female STEM mentors who can strongly influence and enable them to visualize their future career plans.

Project Scientist has strategically placed itself in the Out-of-School time (OST) realm for several reasons. First, summer often results in a significant amount of lost learning, especially for

low-income children. “Summer learning loss is cumulative; over time, the difference between the summer learning rates of low-income and higher-income students contributes substantially to the achievement gap.”[vi] Secondly, OST represents an opportunity for enrichment that is not possible in many classrooms due to the emphasis on high-stakes standardized testing. Bringing in speakers, facilitating field trips, securing supplies for experiments and learning are all challenges when constrained by reduced budgets and inflexible school-day schedules. Thirdly, OST allows for an environment that is less constricted and regimented. “OST programs offer girls a non-threatening and non-academic environment for hands-on learning that is collaborative, informal, and personal.”[vii] Project Scientist Academy leverages OST in a way that is both productive and efficient in ensuring that girls everywhere have the opportunity to explore the possibilities of STEM.

Model: How it Works

The Project Scientist Academy model is the result of extensive research, consultation, and conversations with leading experts in STEM and education. The result of this research led to the building blocks of the Project Scientist Academy approach, which includes a real life lab and science setting at a reputable university that gives girls the confidence and vision to actually see themselves as a student in a university science lab someday. Another key component is keeping classes to fewer than fifteen students and focusing on hands-on and experiential learning. Integrating interactions with female STEM professionals as mentors from both the private and public sector is also fundamental to Project Scientist and reminds the girls on a daily basis that they too can achieve success. In addition, enrichment activities, such as yoga and theater, make it possible to tie in science with the arts and design, which are important aspects of today’s economy and help provide a more well rounded educational experience through the transformation of STEM into STEAM.[viii] Finally, parental and familial engagement is also critical to ensuring that messaging and instruction are reinforced and continued at home. This occurs through daily communication with parents and an invitation to the student presentation and graduation at the end of each week.

Project Scientist Academy serves a diverse population of students. Of the 45 girls served this summer, nine received full scholarships while the remaining students paid full tuition. This funding structure allowed for a socio-economic diversity and provided students who may not have had this opportunity the chance to experience it. By charging students tuition, while also having students

receive need-based aid, it becomes possible to be financially sustainable while still creating opportunities for students who need it most.

Typical Day at Project Scientist*:

8:30am - 9:00am	Arrival
9:00am - 9:30am	"Walkabout with a Scientist": Local women scientists explore STEM topics while walking around the campus
9:30am - 10:00am	“Scientist of the Day" presentation—in person or Skype. Woman scientist talk about their interests, path progression and share an experiment
10:00am - 12:00pm	Instructional time: experiments, field studies, lessons
12:00pm - 1:00pm	Lunch (provided)
1:00pm - 2:00pm	Instructional time: experiments, field studies, lessons
2:00pm - 3:00pm	Physical Enrichment: Yoga, Zumba, etc
3:00pm - 4:30pm	Arts Enrichment: Dance, Theater, Writing
4:30pm - 5:30pm	Free time: games and pick up

*One day per week is an offsite field trip.

Results: **Why it Works**

This past summer Project Scientist Academy had the opportunity to work with 45 girls over the course of four weeks. Partnering with Queens University of Charlotte, the camp engaged girls through hands-on learning, local field trips, interactions with numerous women STEM professionals, enrichment activities, and parental engagement. Nine of the girls attended on scholarship thanks to the support of the Duke Energy Foundation and The NASCAR Foundation. These students were drawn from a school with a high population of low-income, Hispanic, and non-native English speaking students. All the students on scholarship met one of these descriptors. In addition, support from Queens University, Sandra Marshall & Associates, Earth Fare, que-OS, Be Yoga, and others made much of the programming possible. Through open-ended projective tests, surveys, and reflections it was possible to track and gauge the impact and effectiveness of Project Scientist. What follows is primarily a qualitative analysis of Project Scientist Academy for the Summer 2013 camp.

Each week began with two tools to appraise the attitudes of girls towards STEM. The first was the Draw-A-Scientist-Test (DAST), which is an open-ended projective test designed to investigate children's perceptions of a scientist. A consistent finding in the DAST literature is that girls stereotype

scientists as being male and this may influence the likelihood of girls pursuing STEM majors and careers.[ix] At the end of the week, the girls were asked to complete another DAST. Students were also asked to complete a survey on their interests and attitudes towards science. Student surveys were completed at the beginning and end of each week and consistently posed girls with the same questions throughout the entirety of camp to properly gage students' growth in knowledge, openness, and understanding of STEM subjects, jobs, majors, and careers and the individuals who occupy those roles.

During the first DAST, five girls drew figures that could be clearly identified as male.[1] Three of those students were on scholarship.[2] In addition to the drawings, students were asked to write a sentence describing their drawings. One of the drawings was accompanied with the following sentence, "I drew this scientist because mostly men are scientists." When the second DAST was administered at the end of the week all three scholarship students drew female figures. These drawings also included references to STEM and included statements such as, "Women can also be scientist[s] we need more women [sic] to help, they are smart" and "Women can also be smart, have a cool job, and be a scientist."[3]

At the start of the second week the DAST was again administered. Several drawings exhibited Einstein-like figures, a common trend within DAST. Three students drew figures that were clearly male. All the students on scholarship, who had also previously attended the first week of camp, drew scientists who could clearly be identified as female. During the second administration of DAST during this week every student drew a female scientist and many drew scientists from the fields of the women STEM mentors they had interacted with during the week. Week three's administration of the DAST continued the trends developed in week two. Only one student drew a male scientist. Many of the drawings explicitly stated that STEM stood for science, technology, engineering, and math, and many also identified the career of the figure i.e. embryologist, marine biologist, etc. Week four's administration of the DAST continued the same trend present in weeks two and three. Very few students drew male figures and drawings included details about specific careers, experiments, and topics discussed during the week. These trends are especially present in those students on

[1] Samples of student DAST can be found in Appendix.
[2] Students on scholarship were from a local elementary school that primarily serves low-income, Hispanic, and African-American students. All the girls on scholarship met one of these descriptors.
[3] Sample DAST included in Appendix.

scholarship, who attended all four weeks of camp, and are evident in their drawings across the four weeks.

The student surveys were also given at the beginning and end of each week.[4] These surveys posed statements such as "I would like a career or job in science," "I would like to get a job or career in technology," "I think women are good at science," "I could see myself as a scientist," and others. The first survey of the week showed that 52 percent of the girls did not see technology as a career they would be interested in and 29 percent disagreed with the statement, "I would like a career or job in science." When the same survey was administered at the end of the week, only 14 percent of the girls expressed disagreement with the statement, "I would like a career or job in science." A high percentage of girls still expressed little interest in technology as a career. This finding may be explained in part by challenges we experienced in explaining what technology means. Many of the scientists who came in to talk to the girls expressed their personal interest in, and the importance of, technology but going forward a more explicit explanation and presentation of what technology entails may help.

New statements were added each week to the survey. During week two the statement "I think camp will help me become more interested in science," was added as well as the statement "I know or have met a woman scientist." During week two when the survey was given the first time 48 percent of students expressed no interest in technology or computers as a career, 19 percent expressed not knowing or meeting a woman scientist, and 100 percent of the girls believed that camp would help them become more interested in science. When the test was administered the second time 100 percent of the girls could agree with the statement that they knew or had met a woman scientist, though 50 percent expressed no interest in technology as a career.[5] Student interest and attitude data from the surveys administered during weeks three and four showed similar trends. For example, the statement "Learning about science makes me feel confident about myself," was overwhelmingly affirmed both at the start of the week and at the end of the week.

Another indicator of student engagement and interest is attendance.[x] Student attendance for week one was 100 percent, for week two 97 percent, week three 93 percent, and week four 99

[4] Sample student survey included in Appendix.

[5] Explaining what technology means was a challenge throughout camp. Many of the scientists who came in to talk to the girls expressed their personal interest in, and the importance of, technology. Going forward a more explicit explanation and presentation of what technology entails may help.

percent. The average weekly attendance for the entire four weeks of camp was 97 percent. High attendance can attest to the interest students have in programming and their investment in participating. Students who are having fun and learning are more likely to attend.

Parent surveys and reflections were another integral part of assessing the impact of Project Scientist Academy.[6] At the end of the week parents were given a survey with a series of statements and asked to rate their level of agreement with each statement. Surveys were also provided in Spanish by request. During week one, 100 percent of parents indicated on surveys returned that they agreed or strongly agreed with the statement, "After Project Scientist my daughter has a greater interest in science." In addition, at the student presentation and graduation at the end of the week parents were asked to respond with an open-ended reflection on their family's experience with Project Scientist. Responses on the whole were extremely positive and expressed a sentiment of satisfaction and gratitude for the influence camp had on their child. Some examples of those expressions follow:

"She enjoys science and this experience offered such an exciting, hands-on experience that made everything explode in the way of learning. If only this could apply to all classrooms all the time!"

"Anna Grace has come home each day enthusiastic about what she has learned and wanted to explore additional information on the Internet. We are excited to be a part of such an amazing program."

During week two, 100 percent of families that returned surveys agreed or strongly agreed with the statement, "I feel more confident talking about STEM with my daughter because of Project Scientist." One parent noted in her reflection:

"Jessica continues to be excited about science. Her vocabulary has increased and she is more knowledgeable about science. She is learning to work collaboratively as a result of working with a buddy."

Surveys from weeks three and four also highlighted the high degree and level of satisfaction parents had with Project Scientist Academy. Surveys from week three showed that 100 percent of families who returned surveys agreed or strongly agreed with the statement, "My daughter regularly expresses her excitement about Project Scientist Academy." In a parent reflection from week three, one parent shared:

[6] Sample parent survey included appendix.

"Yo como madre estoy muy emocionada con lo que mis hijas me platican. Ellas cada día vienen muy contentas porque descubren que Project Scientist Academy es algo que les está ayudando mucho para ellas saber si realmente se deciden a seguir estudiando ciencias."[7]

Parent engagement is a critical component of Project Scientist's outreach and model. Parents consistently articulated their deep satisfaction with the program, encouraged other families to enroll their children, and enrolled their own children in additional weeks. Many parents expressed a commitment to continue their involvement with Project Scientist and enroll their children in future programming.

Experienced classroom teachers were used to help ensure quality instruction. During the summer two teachers from Charlotte-Mecklenburg Schools (CMS) facilitated the classroom instruction portion of camp. This helped ensure that instruction was aligned to district standards and met best practices. Each week they were asked to reflect on their experience, observation, and insights. Project Scientist is committed to developing best practices that can be used in classrooms during the academic school year, therefore providing reach to a greater audience.[8] Both teachers shared that they would be able to incorporate experiments used during camp into their own classrooms like the lava lamps; egg strength lab; canoe building and testing; and salter and lighter lab. They also shared ways to improve instruction such as pre-assessments; differentiation; and utilizing Sheltered Instruction Observation Protocol (SIOP), like writing key words on the board with the Spanish translation next to it, to engage students with limited English proficiency.

Another essential aspect of Project Scientist is recruiting women scientists from STEM fields as mentors and incorporating them into the daily camp programming. These mentors play a critical role in helping shape and expand a young girl's understanding about who a scientist is, who can be a scientist and what a scientist does. This year more than 25 women from 14 STEM fields representing a variety of corporations and universities participated as Project Scientist Superstars[9]. In most instances a Project Scientist representative proactively recruited the Superstar, but a few also reached out through social media asking to get involved. Eighty percent were able to attend camp in

[7] Translation: I as a mother I am very excited about what my daughters talk to me about. They are very happy every day because they are discovering that Project Scientist Academy is something that is helping them greatly to know if they really decide to continue studying science.
[8] Project Scientist has worked closely with CMS preK-5 Science Specialist Wayne Fisher to ensure that academic programming is aligned to district standards and meets best practices.
[9] Full breakdown of the representation of Superstars included in Appendix.

person and 20 percent attended virtually using Skype to interact with campers either by leading a field-specific experiment, or talking about their profession and answering girls' questions. Superstars reported on their post-survey that they enjoyed the experience and felt they had made an impact on inspiring girls towards pursuing their interest in STEM. A few of their comments include:

"I felt that I piqued their interest and provided encouragement and a good role model."

"They had great questions and seemed really engaged."

"My favorite thing was the feeling that I encouraged girls to be curious and consider a technical career."

After interacting with mentors throughout the week, girls went from seeing a scientist as a gender-specific role to being something open to all genders and were able to then visualize themselves in similar roles one day[10].

Like any great scientist, one of our key objectives is to research and gather data to help inform our work and provide valuable information so that we may continue to learn how to best serve our students, their families, our teachers and our scientists/mentors. Overall satisfaction surveys were collected from all Project Scientist participants after the conclusion of camp. Our studies showed that 100 percent of parents were satisfied with Project Scientist's Academy program as a whole; and 70 percent of those parents reported feeling extremely satisfied. When asked which elements of Project Scientist parents felt were most important the majority ranked small classroom size, certified teachers, and setting of a college campus more important than weekly field trips, camp hours, and price. Parents were also more than happy to share how they felt Project Scientist had been successful. Some of their comments include:

"My daughter had fun and learned! I like engaging the mind during the summer as well as the spirit. As my daughter gets older, she can be more involved in experiments and understand better what the mentors do and how science is part of everything."

"It inspired my child and helped her learn about different STEM professions. It was also academically stimulating, which she craves in the summer. She thought it was very special to be on a college campus. Most of all, she had fun and enjoyed the teachers and other students."

"My kids love science. They love it even more after this camp. Love the fact that different scientists were invited on different days. A great way to see role models."

[10] See DAST results in Appendix.

This survey also proved important for exhibiting the areas that Project Scientist must focus more attention on moving forward and upholding our promise to ensure girls stay on track in their STEM academic and professional careers. Due to parent feedback, areas Project Scientist will continue to expand and improve on are age-specific curriculum, hands-on discovery, and outdoor exploration.

Conclusion: Tomorrow's Problem Solvers

The mission of Project Scientist is to create the most effective STEM experience for girls using hands-on exploration, education, and mentoring. Initial data indicates that in less than a week of working with like-minded girls and being exposed to female role models, a young girl's understanding is expanded about who a scientist is, who can be a scientist and what a scientist does. Girls went from seeing a scientist as a gender-specific role to being something open to all genders and were able to then visualize themselves in similar roles one day. Teachers learned that building a community of like-minded individuals through teams and pairs was effective at bolstering confidence and enthusiasm in a girl's ability and passion for STEM. Furthermore, utilizing teachers from the local schools system enabled Project Scientist to generate a more full-circle impact providing both parents and educators the opportunity to see typically underestimated minority youth excel in STEM subjects. Highlighting girls' achievements rather than their disadvantages assisted in enlightening individuals as to their own inability to escape stereotype bias and to the level of affect one's stereotype reinforcing behaviors can have to produce self-fulfilling prophecy amongst students. In this way, focusing on perceptional development, Project Scientist assisted to equip parents and educators with the knowledge, experience, and tools necessary to proactively combat racial bias, both in the classroom as well as at home, replacing deconstructive behavioral and communicative tendencies with positive language that is inclusive of all social identities.

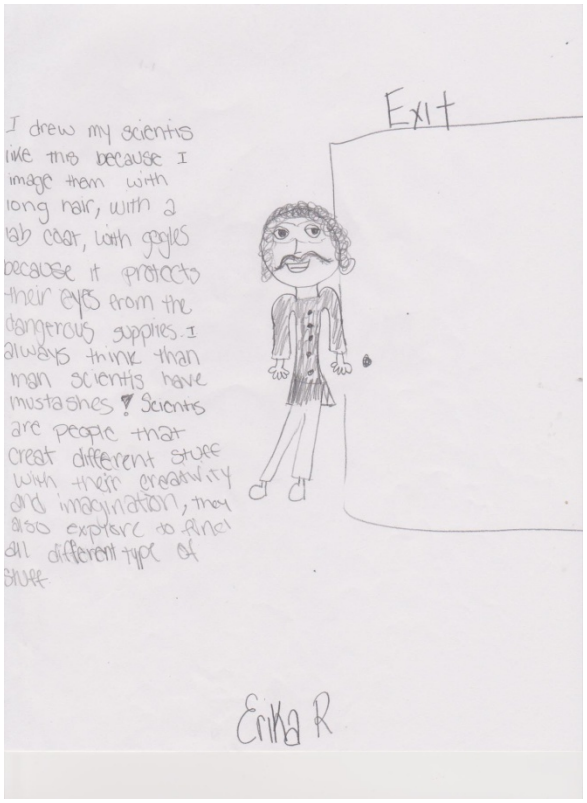
Project Scientist began as the effort of one person to address an issue she found important. At first the program affected the lives of only a handful of girls, but today, it has transformed into a registered non-profit touching the lives of more than 40 girls and engaging with more than 25 women STEM professionals. Going forward, Project Scientist will continue to strive to expand its reach and impact, specifically within ethnic and lower socio-economic populations. The organization will continue its emphasis on testing and collecting important data regarding best practices that can

be incorporated into the Project Scientist Approach and shared with the greater STEM community, therefore reaching a greater audience of educators, students and professionals.

As we develop a pipeline of girls excited and passionate about science, we will continue to focus on connecting our girls to women STEM professionals who are committed to ensuring opportunities and advancement in STEM. This work is only possible if the continued support by parents, communities, and organizations can be maintained. Project Scientist is committed to this work, and looks forward to partnering with those who are committed and passionate to helping girls everywhere realize their dreams and potential. At Project Scientist, we foster today's scientists who will lead the world in solving tomorrow's greatest problems.

"When we invest in women and girls, we are investing in the people who invest in everybody else."
-Melinda Gates

Appendix



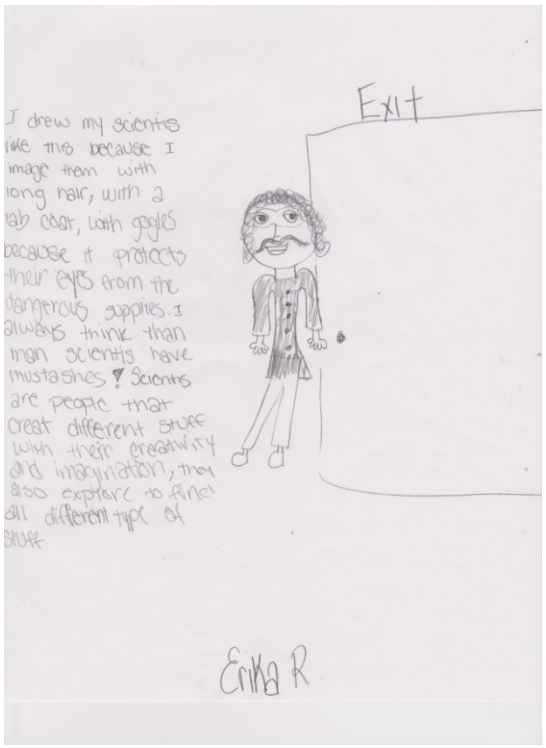
Male Figure from Week 1

Male Figure from Week 2

Stereotypical Einstein-esque figure

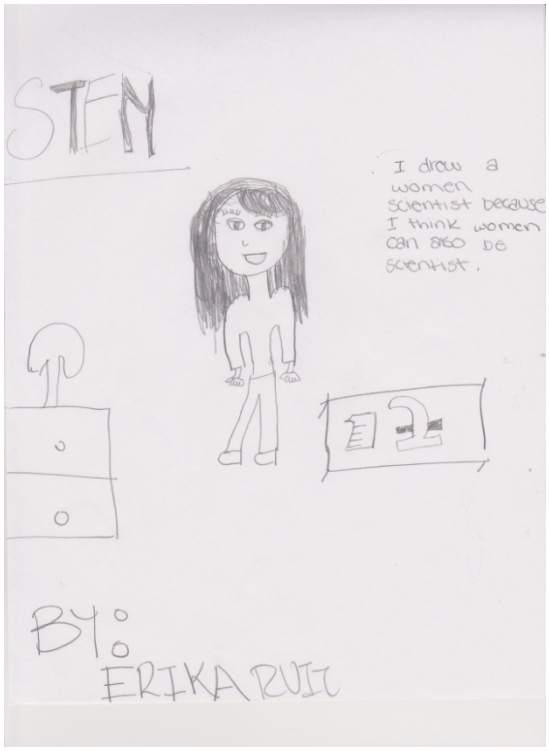
Stereotypical Einstein-esque figure

DAST Erika Series- Drawings reflect changing perception of a scientist



Erika Week 1 #1

Erika Week 2 #1



Erika Week 2 #2

Erika Week 3 #1

Project Scientist Academy Student Science Interest Survey

Name:

Directions: Circle the answer that best describes your response to each statement.

Statements About Science	Strongly Disagree	Disagree	Agree	Strongly Agree
The information and skills I learn about science will be helpful in my everyday life.	Strongly Disagree	Disagree	Agree	Strongly Agree
I would like a career or a job in a science.	Strongly Disagree	Disagree	Agree	Strongly Agree
Science has increased my curiosity about the world.	Strongly Disagree	Disagree	Agree	Strongly Agree
I like science better than most other subjects.	Strongly Disagree	Disagree	Agree	Strongly Agree
I know or have met a women scientist.	Strongly Disagree	Disagree	Agree	Strongly Agree
I would like to get a job or career in technology (computers).	Strongly Disagree	Disagree	Agree	Strongly Agree
Learning about science makes me feel confident about myself.	Strongly Disagree	Disagree	Agree	Strongly Agree
I think women are good at science.	Strongly Disagree	Disagree	Agree	Strongly Agree
I could one day see myself as a scientist.	Strongly Disagree	Disagree	Agree	Strongly Agree
I can see myself going to college in the future.	Strongly Disagree	Disagree	Agree	Strongly Agree
I want to study science, technology, engineering, or mathematics in college.	Strongly Disagree	Disagree	Agree	Strongly Agree
I think camp will help me become more interested in	Strongly	Disagree	Agree	Strongly

science.	Disagree			Agree
I talk about science at home with my parents and family.	Strongly Disagree	Disagree	Agree	Strongly Agree

Project Scientist Academy Parent Survey

Parent Name:

Student Name:

Directions: Circle the answer that best describes your response to each statement.

Statements About Your Daughter	Strongly Disagree	Disagree	Agree	Strongly Agree
My daughter had a strong interest in science before Project Scientist Academy.	Strongly Disagree	Disagree	Agree	Strongly Agree
After Project Scientist Academy my daughter has a greater interest in science.	Strongly Disagree	Disagree	Agree	Strongly Agree
Project Scientist Academy increased my familiarity with STEM as an educational and career field.	Strongly Disagree	Disagree	Agree	Strongly Agree
My daughter had an interest in science as an educational pathway and career **before** Project Scientist Academy.	Strongly Disagree	Disagree	Agree	Strongly Agree
After Project Scientist Academy my daughter has an increased interest in science as an educational pathway and career.	Strongly Disagree	Disagree	Agree	Strongly Agree
I think Project Science has made a difference in the education of my daughter.	Strongly Disagree	Disagree	Agree	Strongly Agree
I think the mission of Project Scientist is important.	Strongly Disagree	Disagree	Agree	Strongly Agree
I would like to learn more and become involved in the work of Project Scientist.	Strongly Disagree	Disagree	Agree	Strongly Agree

Please leave any additional comments or suggestions about your experience and the ways Project Scientist Academy can better serve you in the future.

Encuesta para Padres de Project Scientist Academy

Nombre del Padre:
Nombre del estudiante:

Instrucciones: Encierra en un círculo la respuesta que mejor describa su respuesta a cada declaración.

Las declaraciones de su hija	Muy en Desacuerdo	En Desacuerdo	De Acuerdo	Totalmente de Acuerdo
Mi hija tenía un fuerte interés en la ciencia antes de Project Scientist Academy.	Muy en Desacuerdo	En Desacuerdo	De Acuerdo	Totalmente de Acuerdo
Mi hija tenía un fuerte interés en la ciencia antes de Project Scientist Academy.	Muy en Desacuerdo	En Desacuerdo	De Acuerdo	Totalmente de Acuerdo
Después de Project Scientist Academy mi hija tiene un mayor interés por la ciencia.	Muy en Desacuerdo	En Desacuerdo	De Acuerdo	Totalmente de Acuerdo
Project Scientist Academy aumentó mi familiaridad con STEM constituye un ámbito educativo y profesional.	Muy en Desacuerdo	En Desacuerdo	De Acuerdo	Totalmente de Acuerdo
Mi hija tenía un interés en la ciencia como un itinerario educativo y su carrera antes de Project Scientist Academy.	Muy en Desacuerdo	En Desacuerdo	De Acuerdo	Totalmente de Acuerdo
Me siento como Project Scientist Academy ha hecho una diferencia en la educación de mi hija.	Muy en Desacuerdo	En Desacuerdo	De Acuerdo	Totalmente de Acuerdo
Creo que la misión del científico del proyecto es importante.	Muy en Desacuerdo	En Desacuerdo	De Acuerdo	Totalmente de Acuerdo
Me gustaría obtener más información y participar en el trabajo del científico del proyecto.	Muy en Desacuerdo	En Desacuerdo	De Acuerdo	Totalmente de Acuerdo

Por favor, deje cualquier comentario o sugerencia sobre su experiencia de Project Scientist Academy y las maneras mejor que puede servir en el futuro.

_____

_____

Project Scientist Superstar Representation

Fields represented:
Geology, astronomy, meteorology/climatology, atmospheric/oceanic sciences, earth science, biology, civil

engineering, electrical engineering, neurobiology, biochemistry, mathematics, embryology, technology systems, geography

Organizations represented:
Discovery Education, Duke Energy, Genentech, Government of the Federated States of Micronesia, NASA, Pisgah Astronomical Research Institute, REACh, Tresata, XCOR

Institutions represented:
Barnard College, Clemson University, Columbia University, Curtin Institute of Technology, Drexel University, Duke University, Eastern Virginia Medical School, Florida State University, Queens University of Charlotte, Tennessee Technological University, University of California Irvine, University of California Los Angeles, University of Nebraska-Lincoln, University of North Carolina Charlotte, University of South Carolina, University of Wisconsin-Madison, Winthrop University

Endnotes

[i] Women in STEM: A Gender Gap to Innovation, U.S. Department of Commerce Economics and Statistics Administration, August 2011
[ii] http://www.equalrights.org/wp-content/uploads/2013/03/Final-ERA-STEM-FACT-SHEET.pdf
[iii] https://s3.amazonaws.com/obama.3cdn.net/82ce05f57fd4b2e06d_biw7mvq1a.pdf
[iv] http://www.esa.doc.gov/sites/default/files/reports/documents/womeninstemagaptoinnovation8311.pdf
[v] http://www.stemconnector.org/sites/default/files/store/STEM-Students-STEM-Jobs-Executive-Summary.pdf
[vi] Making Summer Count: How Summer Programs Can Boost Children's Learning, Commissioned by The Wallace Foundation, June 2011.
[vii] STEM Out-of-School Time Programs for Girls, Harvard Family Research Project, January 2011.
[viii] http://stemtosteam.org/
[ix] http://www.pacname.org/OCEP/module_2/resources/THE_DRAW_A_SCIENTIST_TEST.doc
[x] http://www.attendanceworks.org/about/why-it-matters/