

An Interview with Shay Saleem

Ms. Shay Saleem is the Manager of Teen Leadership Programs at the [Intrepid Sea, Air & Space Museum](#). In this interview, she reflects on how her informal and formal STEM learning experiences have prepared her to design and implement youth programs that leverage community networks and empower girls to authentically engage with STEM.



Early Experiences with STEM

A number of key STEM experiences have shaped my career path. I thought when I was getting into undergraduate that I would be purely research. I understood how hard it was to educate and be in the education sector, so I decided I was going to do pure research, and that was my mantra. I had always been excited about STEM and science. Back in the day, before streaming, I watched PBS channel 13 as my classroom. I watched a lot of NOVA shows, especially about marine science. I learned about dolphins, beaches, and habitats and about the creation of Earth. Those subjects always piqued my interest. Luckily, my family lived in Far Rockaway, Queens, by the beach. We used the beach as our playground. I always had questions when I was picking up shells, rocks, looking at all the different types of specks in the sand that would wash up on the beach. I asked, “What is this?” And of course, my mom and siblings weren’t sure. So watching those shows was paramount to my understanding and love of science.

At Townsend Harris High School, we had an opportunity in senior year to do an internship. There was an internship available for docents at the New York Aquarium in Brooklyn, and I was like, “Hey, now, that is for me!” I was a very, very, very shy child, even though I had this big interest. With anyone other than friends and family, I was very nervous about speaking. The internship at [New York Aquarium](#) is where I got a chance to really come out of my shell and practice how to engage and share what I know with the public. Most of the time, teen docents were stationed at the Touch Tank. There, we engaged the public and shared our knowledge about sea stars, sea urchins, and horseshoe crabs. At the New York Aquarium, I got an opportunity to shape my language and my voice in STEM. I also witnessed how hard STEM education actually is.

When I got into [Alfred University](#), my love of rocks was still prevalent, so geology was really awesome for me. At that time, the Alfred University recruitment and on-campus community was working to increase diversity, but I remember being the only girl of color in geology. That kind of hit me hard, but I

didn't have too much of a culture shock because of my family. Growing up in New York, with my mom and my siblings, we were always in every part of the city and Long Island, with varied cultures and ethnicities, so I was used to being one of the few or the only black/brown person in a space. The culture at Alfred University and the teachers in my geology track were phenomenal. They made everyone feel welcome. Everyone had a voice, and they made sure there was a great rhythm of understanding and inclusion.

As an undergraduate, I had my first field research experience. I was interested in wastewater treatment in the Alfred and Almond area, in upstate New York. As a scientist and researcher, under the guidance of my undergraduate advisor, I visited the wastewater treatment facilities, spoke to the supervisors and employees of each wastewater treatment plant, and even received a tour and behind-the-scenes peek at the engineering and technology used to treat water. They would look at me with this expression like, “What is this little black girl doing here wanting to know about wastewater management? But okay, I guess.” I was fascinated by the process by which our water can be treated. I was learning how STEM was a part of all of it. Treatment plants were using microbes, different types of settling tanks, and an involved three-to-four step process to clean the water. After all this research, all the interviews, conversations, and writing, the opportunity as an undergraduate to present this work in a poster presentation for my senior project was exciting.

My internship and undergraduate work set the foundation for me to be successful in graduate school and to be mindful and aware of the role that I play as a black woman in STEM. As a black girl in STEM, it's hard out there for us. We have to find role models very early and expect to be role models ourselves. We have to maintain that stamina, that perseverance, and that grit to achieve a level of mastery in these fields.

Fine-Tuning My Place in STEM

In my early college days, I was like, “No to the education track—I’m not doing that. It’s just too hard.” But in my graduate program at the University of South Florida at the College of Marine Science, Dr. Teresa Greely was phenomenal. She was the woman who turned so many things around for me. She realized that education was key. Also, she realized that bringing graduate students, young STEM majors, into education was vitally important. As educators, we could exponentially bring additional people to the field. So through a program funded by the National Science Foundation, [GK-12 OCEANS](#), I and a number of other graduate students were accepted into a year-long fellowship to learn about education, how to teach STEM science, how to incorporate marine science into a curriculum, and how to partner with local schools in the community. I was partnered with in-service classroom teachers to hone not only the content of marine science, but my delivery of it. I was introduced to how different it was to create educational experiences with a third or fourth grader than it was to do programs and lessons with sixth and seventh graders. Dr. Greely was paramount in making sure that the College of Marine Science graduate students understood the role that they play in education and in community and STEM outreach. That was my big stepping-stone to understanding the importance of education and how we can impact so many students, so many teachers, so many communities, not only in marine science, but in STEM overall.

I also learned how important it was to invite them into our world. It always seemed separate, the college life versus the community. And always the college would have so much wealth, not only in people but in money. It seemed like it was a protected nucleus of work that was only happening in that spot, on campus. It wasn't really disseminated into the community, and Dr. Greely understood that we need to be in the community. We are part of the community and they are part of us and our work.

Embracing Informal STEM Education

Initially, I was going to stay in Florida. I would either do research or actually get into education. I was converted, totally converted, to the value of being involved in education in some way. I saw the need in the community, and as a black woman in STEM with such a strong STEM background, I wanted to give back to the community in whichever way I could.

I'm a Queens girl, and as I finished graduate school, I was looking for a job. My older sister was still living in Queens with the rest of the family. She actually saw the position at the Intrepid Sea, Air & Space Museum. I had never been there, but the museum was looking for an educator with a marine science and or teacher professional development background. Once my sister found the position, she said, "You have to pinky promise me that you will apply and that if you get this job, you have to move back to New York." So, I applied for it, and I got the job. And you know, when you pinky promise a sister, you've got to deliver. I mean, that's serious business. I moved back up to New York and have been here ever since.

At the time, I had never worked full-time in informal education. The Intrepid was getting fixed up and the ship was away getting a beautiful face-lift. So from 2007 to 2008, Intrepid Museum employees were working in the trailers in the parking lot across from Pier 86. The education department was bringing the museum to the schools. We brought our cart, materials, laptop, and all that jazz to every school in New York City that booked us. The shift from doing classroom outreach in Pinellas County, Florida, and being a graduate mentor to a whole school was not that different from the informal STEM education that I was initially doing with the Intrepid education department.

When the ship came back and the schools were coming to us, I had to learn many new ways to deliver different types of content. I had to grow beyond my comfort zone in marine science and expand to include the history of the ship. I was never great at history. In U.S. History, I struggled, partially because it was all based in books. Now in this job, I had to pivot. It was great to do it at a museum, because now I had context, I had the artifacts, I could speak to curators, and the full picture of history came alive. At the Intrepid Museum, it was so cool to actually fuse STEM with history. My informal education definitely shifted to think about context and history. I learned about subcategories of STEM that I had never thought about, like the science of flight, engineering, and aviation, and understanding about water displacement and buoyancy that allows a 42,000-ton ship to float. As part of the education team, we also thought about the humanity behind the hardware as we were rolling back out to the public in 2008. I liked thinking about ways that we could share the stories of the men who served aboard the

Intrepid aircraft carrier or share the stories from the home front, especially during World War II, the Cold War, and Vietnam.

Now, we also have the opportunity to think forward about how this history, service, and work can be the platform for future technological feats. We have our foundation in history, but we continue to innovate and inspire all the minds who come to the Intrepid Museum, in person and now even more virtually. It's interesting how our work and our learning never stops. Typically, there are thousands of people in the museum space who I have to contend with when I am leading programs on the floor of the museum. My voice has to be so much louder, and the emphasis of my words, the movement of my body, have to communicate. There are so many informal educators in the museum world who help to expand our toolkits of delivery. And I have been able to draw on that, as well as lessons learned from theater arts.

We are always looking to create an experience for people that come to visit us. I especially want to provide students and communities of color with a welcoming tone. And also, to be real. "What happened on the ship day to day? What was American society like during *Intrepid's* time in service, and how did that shape the experiences of the men that served? Then moving that forward, what do you want to do or learn now?" I know that a lot of my job is to entice—how can I increase participation with our communities? That was the big shift for me. Refining my thinking and my program design with this lens has given me such a wealth of techniques and ways that I can shift and change with the different diverse audiences that come to museums.

Goals for Girls at the Intrepid

In tandem with my first year at the Intrepid, the Vice President of Education at the time was working to determine how the Intrepid could better support girls and women in STEM. In 2008, we received funding from the Motorola Solutions Foundation to develop a program to encourage and entice girls in STEM, especially those from underserved communities. Since I was known to have a solid background in STEM, I was given the opportunity to work in partnership with The Young Women's Leadership Schools (TYWLS). That was the start of the [GOALS \(Greater Opportunities Advancing Leadership and Science\) for Girls](#) program. I coordinated with four schools in New York City to work with their eighth grade cohorts to infuse the Intrepid history as well as Intrepid-centric STEM content into their school curriculum. I worked with my colleagues, Sheri Levinsky-Raskin and Kerry McLaughlin, to create the first Intrepid STEM-based curriculum binder for math and science teachers of the TYWLS network.

Over the course of a year, we delivered programming and team-taught with teachers in the TYWLS eighth grade all-female classes. We were in Manhattan, The Bronx, and two schools in Queens. The coordination with their school schedule as well with different teachers was immense. I worked with a math consultant and choice teachers from TYWLS to help ensure that the curriculum aligned with the NYC education standards. By the end of the program, we had developed a cross-curriculum binder for each partnering school that was also shared with the national network of Women's Leadership Schools.

When the Intrepid Museum re-opened to the public, we had a celebration with all of the schools and students. One of the Motorola Solutions representatives came and delivered a great keynote address about the importance of girls and women in STEM. Motorola was impressed and offered our partnership team the opportunity to build on our success. I reached out to Dr. Greely and asked her if I could use the [Oceanography Camp for Girls](#) as a model. With her permission, I was able to bring a similar program to New York City. In 2009, Camp GOALS for Girls was born as a four-week program for middle school girls.

This idea of a camp program just for girls, all girls and having an all-girl program on a ship that historically was just for men, was a great opportunity and gave us the chance for our communities to participate in a program that had never been done before in this area. The GOALS for Girls Camp and program has been ongoing since 2009. It has shifted to be responsive to the current needs of girls in the community.

I always want to be on top of the newest trends because we have to re-apply for funding annually. Each year, I have the opportunity to think about new and fresh ways to entice students and families to participate. It's not enough that it is free. My role is to connect with communities and to have conversations that invite students and their families to come to the Intrepid. We want them to see what the commute is like, understand that it is safe, and to see the institution as it is today. That's a lot of my work, especially for the summer program. I am out there spreading the word. I'm a black woman in STEM. I'm committed to providing girls and women with opportunities to share their dreams, share their STEM curiosity, and to expand the program. Now, the GOALS summer intensive program continues as a free six-week STEM and youth development-based program for current eighth and ninth grade students.

The GOALS program also includes an internship-mentorship program. Girls who have completed the summer intensive can apply to be a paid intern with us. Throughout every school year, as part of the GOALS program initiative, I organize and host at least five opportunities for students—not only program alumni, but all students in the community—to come to the Intrepid Museum. One of our upcoming free teen events is on March 6th, Girls in Science and Engineering Day. It's our 7th annual one, but the first time it will be fully virtual. It was born out of early GOALS as a way to highlight girls and women in STEM during women's history month.

The Intrepid Museum has become headquarters for many youth in our community. It's a place of support, a place of learning and engagement for all communities, but most importantly a place that gives girls and women in STEM the opportunity to highlight their work and explore their STEM curiosity. We had to cancel the one last March, due to COVID, but now we have a handle on how we can engage virtually using different platforms. Many people are now used to being virtual, so we're moving ahead.

Impact of the Pandemic and Increased Social Awareness of Systemic Racism

COVID-19 and awareness of racism have impacted my work immensely. Many members of BIPOC communities live within and have to navigate the confines of these ugly truths on a daily basis. These

recent events placed a spotlight on the injustices experienced by black and brown people in the United States. But this awareness led me to two specific opportunities, both with our interns and also as an employee of the Museum.

First, with the GOALS interns, I was able to give them a safer space on Zoom when we have our meetings to recognize the challenges that we are all facing and to open the floor to thoughts and feelings through open and honest reflection. Second, as an employee, almost immediately after the George Floyd moment, my colleagues and I needed moments to chat and reflect. To share our concerns, thoughts, and ideas on how the Intrepid Museum can and should address such injustices, together we wrote a letter to the president of the Museum. It was a respectful letter that shed light on specific aspects of what and how we can do better as an institution. The letter was very well received. We had an additional meeting with upper management of the museum to talk about and figure out next steps.

We created our DEAI (diversity, equity, accessibility and inclusivity) task force—a committee that includes an equal number of staff members and leadership within the Organization. We met virtually for several months to talk and think strategically and openly about the necessary role we play as individuals within the institution and the mission of the Museum within the community. I have to tip my hat and give a virtual hug to the president of the Intrepid Museum, Susan Marenoff-Zausner. She is a person who values Intrepid Museum employees and the NYC communities and respects the deep history of the ship. We as a team made the leap to hire a consultant to guide us in this work. We're all thinking and deeply engaged in co-defining what the Intrepid means from the outside in and from the inside out, with all departments involved. We understand that it's not going to be a fast process and that finding solutions to systematic bias is ever-evolving work that we have to do as an institution. We're excited to continue it.

Now that we're on this pathway, we have the opportunity to not only understand the role that we play as an institution sharing more diverse stories, but we can also re-imagine our collection in ways that can be more welcoming to diverse local and hyper-local communities within NYC. In education, this was always what we did, but now I think there is an increased awareness of the importance of this approach. It's been more embraced and recognized by the full museum and they are thinking differently about the role that we currently play and the role that we need to play within this time period. I am very excited for these next steps at the Intrepid.

Resources and Tools for the Community

I use my personal LinkedIn as a resource. There are so many talented women and organizations out there doing great work, and it always blows my mind when I find them. I've always used my influence within the GOALS for Girls program to highlight as many different women of color as possible. I invite them to come to our program to be mentors, guest speakers, keynote speakers, workshop facilitators, and even summer staff.

I also use my LinkedIn to connect with the program alumni. Two years ago, I got more serious about tracking down program alumni and I started searching for the girls from past summer programs. Now I've been able to connect with over 200 of the GOALS program alum. When I post anything or when I connect anything, whether it's within my connections, only LinkedIn or broadly, now they know what I'm doing. They know that the GOALS program is still going on. These LinkedIn posts and messages help alumni from varied GOALS program cohorts connect with each other, in turn expanding their overall networks.

I hosted a virtual GOALS alumni UN-reunion on December 19th with about 32 of the girls attending. We had a good time and a couple of girls said, "We should do this like maybe every two months, and I'm like, okay, let's form a planning committee." Now we have a voluntary committee of three GOALS girls who are ready to do another get-together. They're in the process of organizing it and doing research on the best ways for us to stay connected. They are committed to have the GOALS program shift to the forefront of opportunities and event offerings within their networks and current community through social media and more.

I would also encourage STEM educators and program developers to tap into your hyper-local cultural institutions. GOALS would not be where it is today without partnerships with varied institutions and diverse people who wanted to work with the program. Most culturals have a teen or a youth programmatic arm. Through that outreach, they are like the grassroots of larger organizations. They have their ear to the ground, they know about communities, and they know what works and maybe what doesn't work. So connect to and with them. Work together to create a smooth pipeline of opportunities and engagements for families and teens within the community.

Institutions like the New York Hall of Science have been paramount in providing additional opportunities, not only for our GOALS girls to visit, but also for our Navigators, which is what we call my interns, to go to their institutions and speak to their Explainers. Having opportunities to speak with teens and youth broadens the network of the GOALS Navigators, beyond just their peer-to-peer network to other intern and career choices. We've had a number of GOALS girls become Explainers. The American Museum of Natural History (AMNH) has a wealth of programs for teens and youth. We've had GOALS girls participate in AMNH programs, and I've had two women who were part of AMNH programs become summer staff members with GOALS. It's expanding that network. It's creating opportunities. It's working with your local and hyper-local businesses, too. Letting the girls know that there are a wealth of cool things and places to go to in their own communities helps to shape and connect everyone organically.

Looking Ahead to the Future

Our second annual Virtual Youth Summit is June 12th. Our original plan for a Youth Summit was to be in-person aboard the *Intrepid*, but due to COVID we shifted to virtual. Shifting it to virtual enabled people in institutions not only from New York, but from the rest of the United States, as well as globally, to participate in a program that highlights youth and teens. This year, we will also focus on the themes of STEM, social justice, advocacy, sustainability, entrepreneurship, and volunteerism. It's a mash-up

and it provides a day of programming for everyone to enjoy. Our theme this year is Breaking down Barriers. At the core, it is an opportunity for teens and institutions to participate in ways that can uplift, inspire, increase awareness, and provide a level of dedication to the community through the themes noted above. Spanning the diverse spectrum and intersectionality of STEM and social issues, all communities have an opportunity to share their work and to inspire people to do their very best, for the livelihoods of everyone and everything.