Extreme Outreach

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Abstract

Outreach is an important word to nearly every planetarium and science educator. The meaning and purpose of outreach varies greatly from organization to organization. What makes outreach worthwhile and how do you measure its effectiveness? From extreme numbers to extreme distances we will explore examples of extreme outreach from around the world.

Intro

Outreach is an important aspect to every planetarium and science educator, but its meaning and execution manifests itself differently depending on the needs of a community and the goals of a particular organization. Certainly, many more factors exist in the making of an outreach program. Each one of these factors plays its role in shaping a unique experience for the outreach providers and recipients alike.

As planetarians we often find ourselves set up at a booth with a science demonstration, out on the field with telescopes, or as a premier attraction with a mobile planetarium. Sometimes it might even be all of these things. Whatever the case maybe, we want our outreach to be successful and effective. But what does that look like? What are some parameters we can look for in creating an impactful outreach program?

To investigate these questions, we will take a look at some examples of extreme outreach taking place across the globe. Our journey will take us to extremely remote locations, across extreme distances, to examine outreach programs with an extreme impact on the communities being served and on those who are serving them.

Traveling Telescope

We begin with a visit to Kenya to visit Susan Murabana and her outreach done through The Traveling Telescope, a social enterprise founded by Susan and Chu, a married couple. They have traveled from Kenya’s inner cities to some of its most remote corners, to spread the love of
studying the sky to all Kenyans. Traveling Telescope has provided tens of thousands of young curious people their first opportunity to observe the mysteries of the universe up close. The main goal is to get as many young people as possible interested in science by using astronomy as an avenue to get kids excited and curious. Susan feels that science is the way that the region will develop in a sustainable way by raising up more home-grown scientists in Kenya.

The Kenyan landscape stretches from low coastal plains in the east along the Indian ocean, to complex highlands with plains, deep valleys, and mountains cutting through the center of the country. West of the highlands the topography slopes down to the Lake Victoria Basin in the west.

Susan and her team trek across the expansive terrain to some of the most isolated and rural places in Kenya bringing with them the largest telescope in the country as well as a mobile planetarium. A typical program starts with a daytime planetarium show which builds anticipation for the real deal when the kids get to see the night sky up close with a big scope. Sometimes during these visits 100 eager students would be squeezed into the 8-meter planetarium at a time as Susan performed back to back shows to introduce every student to the night sky.

Being in such remote areas does present certain challenges. Extreme weather and heat, lack of infrastructure and electricity all make for some memorable moments in the pursuit of Susan’s goal of having every single Kenyan look through a telescope.

**Turning Point Brazil**

Brazil is a huge country, 5th in size and population. It occupies half of South America’s landmass. As a result, the Brazilian landscape is immense and complex, with interspersed rivers, wetlands, mountains, and plateaus. Like most developing countries, Brazil has a huge social gap. Brazil experienced a period of economic and social progress between 2003 and 2014, when more than 29 million people left poverty and inequality declined significantly. However, since 2015, the pace of poverty and inequality reduction seems to have stagnated.

Economic conditions play a big role in how we approach outreach or if we even do outreach at all. At the moment there is a trio of astronomy educators in Brazil who have all been affected by the economic whims of the continent. Each one of them responded in their own way to promote a message of optimism and inclusiveness through the use of astronomy.

**Pointing to the Future**

Recently, in the southernmost state of Brazil, a new fixed planetarium was born out of the fruitful labor of prior outreach with a mobile dome. Planetário da Unipampa a university planetarium directed by Guilherme Marranghello has been in operation since 2017. The parent
university was created in 2006 with a special motivation to be the turning point for the socio-cultural-economic decline period the region has undergone. In this region of fertile lowland plains stretching over 700km from the Atlantic Ocean to the Argentinean border, the Planetário da Unipampa is the only Science Center around, making Guilherme’s work ever more important.

Guilherme still operates a mobile planetarium and it travels all over the state of Rio Grande do Sul. In 2019 as an International Astronomical Union 100 years: Under One Sky initiative Guilherme spent 60 days travelling 15,000km reaching thousands of students and visiting dozens of cities. In addition to the mobile planetarium this initiative included live stargazing and teacher workshops furthering the depth and reach of the program.

Guilherme's mission is to unveil the universe before the eyes of children thirsty for knowledge, giving them the means of freedom through education. With energy and spirit Guilherme and his team are getting a growing generation to look up and point to the future.

Outcasts

Rio de Janeiro is a city shaped by mountains and sea. It lies in the narrow strip of alluvial plain between Guanabara Bay and the Atlantic Ocean. Its exceptionally dramatic landscape is punctuated by a series of forested mountains that tower over the city.

Rio de Janeiro is Brazil's second largest city. Over two million of its inhabitants live in underprivileged areas, including the infamous slums known as “Favelas”. For some time, the Favelas had become the perfect place for organized crime and drug cartels to set their bases, bringing to the city a great level of distress. Like the rest of the city, people living in the Favelas became hostages of this situation, victims of a violent cycle they could no longer control. In the midst of the economic revival the State Government started a process dubbed “pacification,” in order to regain these areas and incorporate them back into the city. Overtime basic services had been reestablished or, in some cases, established for the first time ever. The Rio Planetarium saw this as a perfect opportunity to bring science to a very underprivileged population.

The residents of the Favelas struggle every day to bring food to their table and a trip to a planetarium is definitely not in their list of priorities. Some of the most densely populated Favelas are located on the hills of Rio. Hills that could house an observatory, for example. And for a while, they kind of did. Between 2013 and 2016 Alexandre Cherman and his team from The Rio de Janeiro Planetarium held a special program called “Luneta na Laje” (“telescope on the rooftop”) where they would take telescopes to a Favela on a hill and engage local residents in sky watching.
Such an event would not have been possible without proper planning and local assistance. One of the greatest challenges of the project was finding the spots where they could safely get the telescope to, where the local population will have easy access, and where they would be able to watch the sky. It was not unusual for the staff to cross paths with the occasional armed drug dealer, or for the residents to recommend the event be canceled for safety concerns.

Over time people from the visited areas started showing up at the Rio Planetarium. Solid evidence that the program was touching lives and lifting hearts. Just a few years prior these families were outcasts, stranded within their own city. Unfortunately, in the wake of a strong recession the situation deteriorated and in 2016 the whole program had to be discontinued to preserve everybody’s safety.

**Astronomy Backpack**

In 2017 a political, social, and economic crisis struck Venezuela. Every institution in the country was affected as the currency imploded and people began to flee. Bryant Gonzalez was a planetarium technician at the Planetarium Humboldt in Caracas. Prior to the crisis he and his team were developing new and innovative ways of teaching astronomy in the planetarium with ancient equipment, by combining audio-visual effects with speech to increase immersion and learning comprehension. However, with the deteriorating situation in Venezuela the project was abandoned, and Bryant decided to leave the country.

Departing without money or destination, his only possessions were a backpack with some elements to teach astronomy and the clothes on his back. The plan was simple, survive, and to do so by sharing his knowledge of astronomy with schools, communities, and other planetariums in exchange for food and lodging or some money to continue his journey. The acceptance of this transaction has fueled his travels to 7 countries, stopping in more than 185 cities, and visiting astronomical institutions, planetariums, and observatories all along the way.

In his travels he discovered that most people do not have access to science or the technological resources to learn astronomy. He found a chance to teach astronomy and share his knowledge with children, students, and people of all ages. To connect directly with them by sharing in their life and becoming a part of their community for a short while. In the process Bryant gained an understanding not only of how they live, but also how they see the night sky.

Bryant’s journey exemplifies the fact that astronomy is a science without borders. Without a place to sleep or money to eat he travels on. His travels are fueled by the generosity and curiosity of those he meets along the way. Bryant has written a book about his discoveries and experiences. He currently resides in Brazil but hopes to visit new continents in the future to
increase his knowledge about planetariums, astronomy education, and the different windows through which we view the same sky from.

**Backwaters OAP**

The night skies over the Outer Albemarle Peninsula in eastern North Carolina are among the darkest in the entire US Atlantic coastal system. Much of the Outer Albemarle Peninsula landscape is dominated by wetlands that lie on flat lower coastal plains. Ditches and dykes scar the landscape in nearly every direction. Evidence of humanities lame attempts to tame this land which is at the mercy of the sea.

The nocturnal environment and the night skies rotate from the brilliant, brightness of the full moon to the blackness of the new moons when the starry sky opens to a dazzling universe. The cold, crisp, winter nights are dominated by the overwhelming sounds of flocks of tundra swans and snow geese by the many tens of thousands moving from the refuge lakes to the farm fields. The summer nights are hot and humid and dominated with a cacophony of insects and frogs, with massive light and sound displays derived from the outlines of perfect thunderheads as they move across the Albemarle Peninsula.

In a quest to better understand the nocturnal environment and how it can be best viewed and appreciated, Brian Baker from A Time For Science partnered with North Carolina Land of Water to design a study to map and characterize the landscapes, soundscapes, and viewscapes of the Outer Albemarle Peninsula. An important goal of the project was making the public aware of the uniqueness of their nocturnal environment with community outreach and education during the project year. Educational workshops provided local science teachers with new ideas to incorporate into their lesson plans, having impacts on a vast number of K-12 students within the region. Several public star parties as well. Each star party included a mobile planetarium, a variety of astronomy related hands on activities, and a series of telescopes monitored by volunteer astronomers to guide guests through night sky observations and discussions.

An overwhelming showing of awe, wonder, and appreciation for the night sky was garnered by the people who live in the area. The research backs up that kind of emotional response. The initial survey showed that the Outer Albemarle Peninsula has IDA gold standard dark skies. It is now up to the local communities to come together to lay the groundwork with a plan to obtain an “International Dark Sky Reserve" designation by the IDA. Doing so will bring national and international attention to the existing plans for developing educational and sustainable ecotourism programs for the underserved counties of northeastern North Carolina.
Conclusion

The meaning and purpose of outreach varies greatly from organization to organization. Yet we can see a common thread between each of the outreach efforts discussed here. It's really a heart issue that makes outreach worthwhile. A heart to serve. A heart to teach. A heart to share. A heart for the lives and futures of those you are reaching out to. Is it possible to measure that? Of course it is! It's just that the measurement is arbitrary. Success can be found in reaching one million people or even just one.

To have an extreme impact with our outreach you need a passion and a drive to reach your goals and to realize a dream. You need perseverance to endure the dangers and discomforts of going the distance and opening up to complete strangers. Finally, you need the sky. Each one of these stories of extreme outreach utilized the actual sky. There is no greater resource that we have as astronomy educators than the open availability of awe and wonder provided by a telescope and the night sky.