



Seeds of Success 2022-2023

Final Report



Ciencia
Puerto Rico
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Summary

Seeds of Success is a Program that mitigates underrepresentation of Latinas in STEM by empowering 7th-9th grade girls in Puerto Rico through: connections with Latina STEM role models, exposure to STEM careers and activities; and guidance to develop leadership skills and become STEM Ambassadors. The program had three main audiences: (1) participating 7th to 9th grade girls, (2) Latina women in STEM mentors and (3) the general public. For the 2022-2023 edition, the program recruited 121 girls across Puerto Rico, and 97 girls were able to complete the program. Also, the program provided a professional development experience to 113 Latina STEM role models and mentors and 19 ex-alumnae who served as peer-mentors. Finally, 23,095 people were reached via webinar series that hosted renowned female STEM professionals, completion of 86 STEM outreach projects, and outreach activities. Girls exited the program with a higher self-regard as leaders and knowledge of STEM careers and opportunities.



**LATINA ROLE
MODELS**



**OPPORTUNITIES
IN STEM**



**LEADERSHIP
DEVELOPMENT**



Outputs

- **Events**

- **Seed of Success Workshops (in-person):** a total of 4 workshops, one in each program region (San Juan, Ponce, Mayagüez, and Humacao) were celebrated. Girls participated in scientific experiments, mentoring, leadership workshops, visits to research or manufacturing laboratories, and STEM Ambassador project design.
 - **Semillas Kit:** each participant received a kit with workshops materials, STEM promotional information, a foldable microscope (Foldscope), and a program t-shirt.
 - **Orientation:** discussion of program components and expectations
 - **STEM activity:** a hands-on activity about chemistry reactions and its importance in medicine and natural science.
 - **Leadership workshop; A leader in you:** an interactive session to define:
 - leadership strengths and areas to reinforce
 - science challenges and possible solutions.
 - **Keys to success:** a leadership session, mental health and self-love
 - **STEM Ambassador Projects (peer-mentoring):** discussion guided by past STEM Ambassadors, about their projects, strategies, and challenges
 - **Think about your project:** a design thinking activity to start shaping STEM Ambassador Projects.
 - **Visit to laboratory/industry:** visits to manufacturing and academic laboratories as:
 - University of Puerto Rico Rio Piedras Campus, General Courses laboratories with Dr. Carlos Ayarza and Dr. Gerardo Arroyo
 - University of Puerto Rico, Mayagüez Campus Automatization laboratory, Model Industry, and Human Factors with Dr. Lourdes Medina.
 - Medtronic Industry at Ponce
 - Medtronic Industry at Humacao
- **Orientation and mentorship workshop for volunteer mentors:** 113 volunteer mentors were recruited and invited an online program orientation and a mentoring training before their first mentoring session.
- **Group and 1:1 online mentoring sessions:** The mentoring process started with an online group session. Then, girls received 1:1 mentoring sessions from volunteer mentors, women in STEM. During the mentoring sessions girls worked in ideas and plans for their STEM Ambassador Projects, and receive feedback from mentors and peers.
- **Technological Tools Workshop:** Interactive virtual workshop on video editing, and content creation for social networks.
- **Juntas Podemos webinars:** Four “Juntas Podemos” webinars were celebrated. The videos are maintained on the CienciaPR's YouTube channel and the Seeds of Success website, so that many more can watch them:
 - [Rocío Cardona Couvertier](#)
 - [Joan Marie Meléndez](#)
 - [Cristina Rodríguez](#)
 - [Virginia Alvarado](#)

Outputs

- **Coding workshop:** Dr. Nayda Santiago from UPR Mayaguez and her team offered an online workshop to discuss programming/coding concepts and its importance in natural science. An Arduino irrigation system kit was given to each participant. Surprisingly, this online activity was educative and enjoyable to parents and family members in addition to participant girls!
- **Conexión Científica AMGEN:** a panel to meet successful women in the biopharmaceutical company AMGEN
- **Donation campaign:** Seeds of success launched a donation campaign during women's history month to support the inclusion of girls with disabilities and to expand our impact in schools and marginalized communities. We were able to gather \$7,615
- **EcoExploratorio Museum Workshops:** 2 hands-on fun workshops offered by the staff at the Ecoexploratorio museum
- **Final ceremony:** during the closing ceremony at the "Centro Criollo de Ciencias y tecnologías del Caribe" (C3Tec), the program presented its outcomes and girls' achievements. Also, the best STEM Ambassadors' projects (selected by an external committee) received prizes and girls participated in a lab coat ceremony and a museum tour.
- **STEM Ambassador's Projects:** as part of the program, participating Seeds of Success girls designed and completed online & in-person activities/events as their STEM Ambassador outreach activity. These activities have three goals: (1) help girls learn and see first-hand how science can be an empowering tool for their communities; (2) help girls develop communication, teamwork, and time management skills, as well as their self-confidence as leaders and innovators; and (3) extend the impact of the program to more young people. Girls reported their projects and project summaries are included in the [website](#). A total of 86 girls finished their Ambassador Projects and reached more than 19,000 people.
- **Program Videos**
 - We produced videos in Spanish highlighting girls and program achievements and also to share with them STEM fun activities. Some examples are:
 - [Binary numbers bracelet](#)
 - [Lightup ceremony](#)



Outputs

- **Classroom/training materials**
 - **Latinas in STEM Digital Collection** (Spanish): the Seeds of Success Latina Women in STEM Collection includes more than 200 Latina role model's profiles in Spanish that includes an introduction video, a short bio and a poster. The Collection includes a user's guide video and posters can be downloaded for free. This cycle, 87 new STEM role models profiles were added to the collection.
 - **Borinqueñas en STEM Exhibition**: the Centro Criollo de Ciencia y Tecnología del Caribe (C3Tec), CienciaPR and the Municipality of Caguas presents the exhibition "Borinqueñas en STEM", a recognition of 37 outstanding Puerto Rican women in the field of science, technology, engineering and mathematics.
 - **"Siembra Semillas de Triunfo en tu escuela"**: designed to reach schools in Puerto Rico by recruiting **50 science and math teachers** to receive educational materials and access to resources of the Seeds of Success Program and **Latinas in STEM Collection**. Through this component we were able to distribute **250 printed posters** among 50 educators
 - **Leadership Power Training**: peer-mentors created the second season of the Leadership Power Training, an online free and open resource to teach participant girls and other students about leadership skills.
 - **Seeds of Success series at "Científicos al Servicio"**: a total of 23 online talks and visits to schools were offered by Latinas in STEM from the Collection and reached more than 28,000 persons.
- **Program materials**
 - **Seeds of Success Welcome Kit**: Participant girls received a welcome Kit with program guides, educational materials and hands-on STEM activities.
 - **Seeds of Success mentor's Welcome Kit**- Mentors received a kit with program guides and tools
 - **Program guides**: We developed guides for participant girls and mentors.
- **Outreach**
 - Seeds of Success at the Young Women Conference-Princeton University
 - Seeds of Success at the Science Week- Department of Education of PR
- **Seeds of Success Coalition**: A Coalition of 30+ collaborators that includes industry, non-profits, academia and other organizations that support the program and the girls.



Evaluation metrics

The Program monitored different metrics to evaluate success and to ensure it met the Program outcomes. Also, the assessment strategy included: (1) a parent survey, to understand the girls' household context and previous exposure to STEM; (2) workshop evaluation questionnaires, to examine the opinion and satisfaction of the girls and participating mentors with different aspects of the workshops; (3) and a summative assessment, comprised of a survey before the first workshop and one before the closing ceremony, to assess any changes in participants. Seeds of Success edition was a very successful Program that was able to recruit, retain, and engage girls.

- **Metrics**

- **Number of applicants:** 271 7th to 9th grade girls from Puerto Rico
- **Girls' recruitment:** 121 recruited to participate in the program and who participated in the orientation & leadership webinar
- **Girls' retention:** 97 girls completed the program activities
- **Number of STEM Ambassadors:** 87 girls completed a STEM Ambassador Project in their community or school
- **Additional people reached through the girls' STEM outreach projects:** 19,044
- **Women mentor's recruitment:** 113 Latinas in STEM and role models for online mentorship program
- **Number of Peer-mentors:** 19 alumnae and STEM Ambassadors from Seeds of Success were trained to become peer-mentors
- **Additional recruitment of Latina Role models:** 62 Latina women in STEM who participated online as speakers at "Juntas Podemos" and workshops' facilitators.
- **Attendance to "Juntas Podemos":** over 3,271 attendants to 4 webinars
- **Number of collaborators in the Seeds of Success Coalition:** 34
- **Number of new profiles in the Collection:** 87
- **Teachers participating in "Siembra Semillas de Triunfo en tu escuela":** 50
- **Visits to Seeds of Success Women in STEM Digital Collection:** 21,257 visits from the release date (4257 visits this year)
- **Media tour impact:** The Celebration media tour and press campaign highlighting girls' projects and program achievements by press, radio and TV time. [See some publications in the news section of the website.](#)

- **Surveys:**

- Participant girls: **98%** overall program satisfaction
- Participant girls: All survey items about program activities satisfaction received a **median value of 4** or higher in a scale of 1-5, with 5 being the most positive score.
- Overall scores for the entire survey were **significantly higher** after the program than before (Pre average=172.06, Post average=181.66, p-value of 0.0004).
- Program objectives items such as: trust in own-leadership, knowledge of STEM careers and opportunities, and access to STEM role models had a **significant difference** between post and pre survey (p-values 0.0193, <0.0001, <0.0001, 0.0014 respectively) showing improvements after program participation.
- 90% of **mentors assign a 6 or higher for program satisfaction** (a scale of 1 to 10, 10 meaning that completely enjoyed the experience of being a mentor, was used)
- **86%** of mentors agreed that the mentoring experience allowed them to contribute to the development of girls in STEM disciplines.

Seeds of Success will continue its impact in Puerto Rico. We are currently running a new cycle of 120 girls for the 2023-2024 school year. The Program aims to do a hybrid schedule with online activities and in-person activities. Finally, the Program will continue implementing a long-term evaluation strategy to track outcomes such as high school graduation, college enrollment, choice of major, and future career choices. We hope to count on your support again during this next cycle to ensure the success of the program and continue offering positive and engaging STEM opportunities for girls throughout Puerto Rico.

*SI apoyamos una chica en STEM,
ENTONCES ella puede cambiar el mundo*

Visit the Seeds of Success Website: <http://bit.ly/2ZibYZU>

Seeds of Success Coalition



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