



2018

SAI Annual Report



STEM ADVOCACY
INSTITUTE

45 Prospect St., Cambridge, MA 02139

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Our Mission

To conduct research in-order to build new tools and insights to both understand and tackle fundamental issues of access and development in science education, outreach, and communication.

Directors' Welcome

At SAI, we envision a future where there is universal and equitable access to science for all. Our core belief is that education with a strong foundation in science is a critical component for global economic growth, social advancement, and ultimately, global peace. This is the vision that is at the core of all SAI projects. We believe this vision is also a powerful magnet in attracting new people to join the Institute. We are hopeful that we will continue to build a body of ideas, insights, and tools that advance access and development in science education, outreach, and communication around the world.

Since the last report in December 2017, the Institute has seen tremendous growth. In this report, we review some of the important updates across its Research, Development, and Advising Divisions. This structure of operations is necessary to ensure SAI is able to achieve its mission in a sustainable manner in the long term.

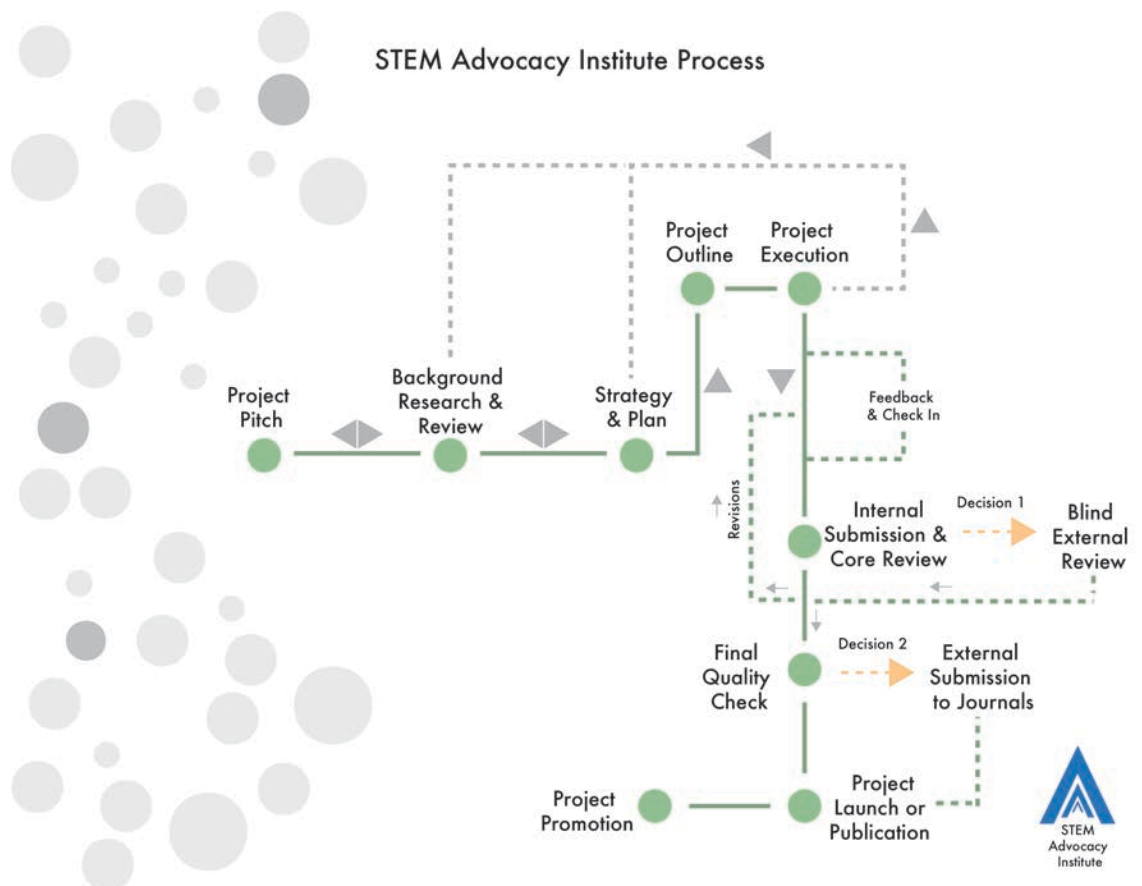
We would like to begin this report by highlighting the acquisition of the 501(c)3 non-profit status (incorporated in the state of Massachusetts) that was granted by the IRS on August 7, 2018. We would like to thank all members of the Institute for all their hard work which made this possible. The formal status is a huge step for SAI as it continues to grow and expand its capacity. Furthermore, shortly after achieving the non-profit status, SAI secured its first community office space in Central Square located at 45 Prospect St, Cambridge, MA 02139! This was yet another important step for SAI.

We would like to thank all SAI community members for all their hard work in making this both an exciting and inspiring place to work. **We are also thankful for all of the donors for believing in us.** We are excited for the year ahead.

Fanuel & Jessica

Institute Framework

Our work is focused on conducting research in-order to build new tools and insights to both understand and tackle fundamental issues in enhancing development and access to science around the world. Our work is divided across 3 main divisions: Research, Development and Advising. Our process for all our projects is iterative in articulation of the problem and coming up with a plan for generating new insights or developing tools that contribute to tackling a particular issue directly. In the figure below, the whole process is visualized:

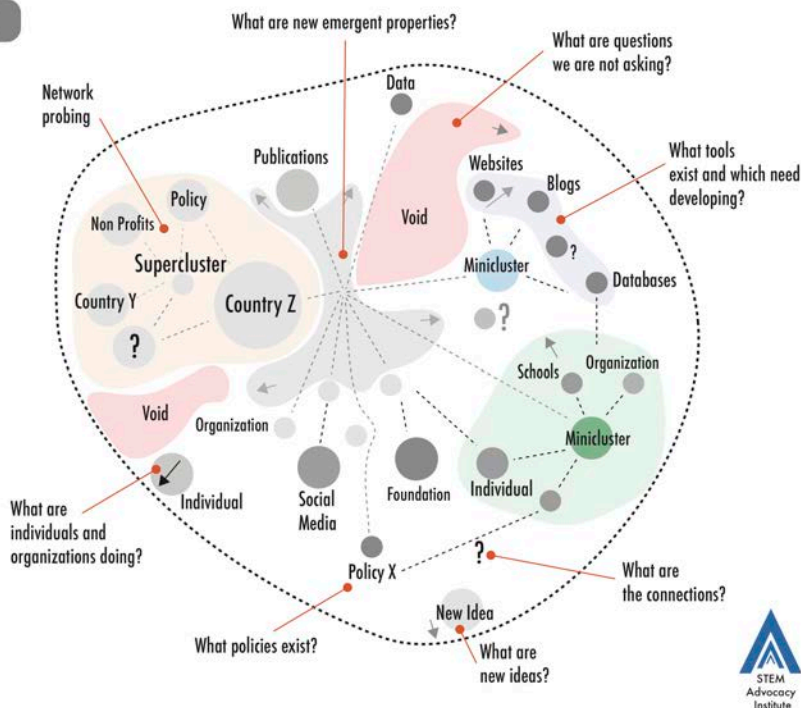


Research Division

The main function of the research division is to focus on bringing insightful awareness on fundamental issues of development and access in science, education, and communication. Over the years, the division has led the publication of several publications (letters, articles, & perspectives) that were published in high impact journals such as Science and Nature. Of course, publications are great, but this is not the only goal. Again, the critical point here is to provide critical and fundamental insights on issues of access in science, education, and communication. Publications are just a vehicle that allow us to get the message out.

At the broadest level, the division focuses on the what, the who, the where, and the how (see figure below). For example, what policies are currently in place to enhance

Fig. 1

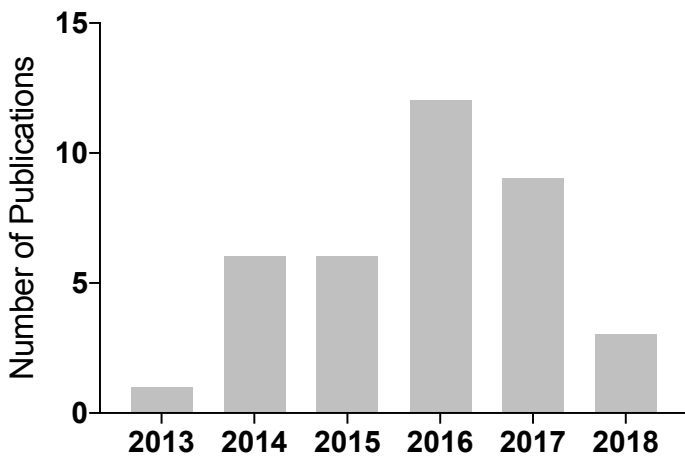


science education and science dissemination around the world? How are such policies structured and how were they designed? What are the assumptions underlying these policies? What are the barriers blocking access to science? Which initiatives in promoting science education and dissemination are working and which are not? What is the typical structure of science education and communication initiatives or organizations? Where are they located? What are they doing? Which new insights and ideas need advocacy? What is the nature of connections within science education?

These are some of the questions the division has tackled over the years. This year has seen important publications in the areas of algorithmic bias, the usage of individual development plans more effectively, and rectifying biased interpretation of science history. Each of these publications brought to light important issues of development

and access in science. Overall, we continue to publish at a reasonable rate (~avg. of 4-5 per year) given that we are all volunteers. We continue to improve our mentorship process to ensure we are able to tap into the expertise of different members of the Institute.

Publications Across Years



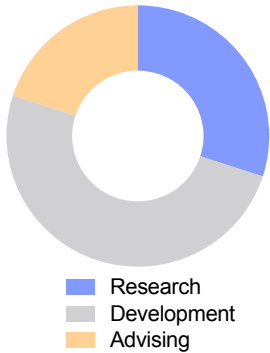
It is our hope that the division will continue to grow with the formation of “labs” that which will specialize in investigating specific issues of access in science education, outreach, and communication. For example, the topic of organizational network dynamics is something that the future ‘Muindi lab’ will work on within SAI. It is our hope that other a variety of groups will emerge over time that collectively attempt to characterize diverse issues of access and development in science. The heads of

these groups will serve as Principal Investigators enabling them to apply for their own grants to support their work.

We shall have to wait to see whether this model bears fruit in the future. For the moment, the focus is on building the foundation to support such a framework for the division. Importantly, channels that allow cross communication between divisions will be important to establish as early as possible and work intentionally to maintain. The connections between the divisions will be critical for the success of the Institute.

People in the Division

- Fanuel Muindi – Principal Investigator
- Jessica W. Tsai – Principal Investigator
- Aiza Kabeer – Research Fellow



Development Division

Currently, the development division is where a lot of the Institute’s work is housed. The focus here is to build tools. There are no restrictions on the type of tools, but they all have to align with the central vision and mission of the Institute. Over the past year, the existing tools (Stories in Science and SciReach) have continued to grow and a number are now in the pipeline.

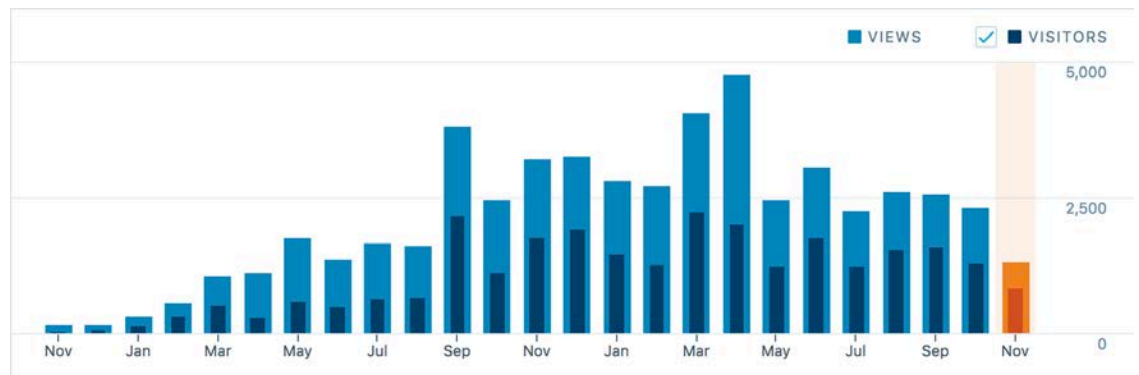
Journal of Stories in Science

(Project Lead: Fanuel Muindi & Jessica W. Tsai)

We believe in the power of the human story to transform science education and communication. The mission of this project is to characterize the human nature of science. The journal has been active for the past 2 years and continues to grow. It currently hosts 109 stories as of this writing and almost 2000 twitter followers.



Website Views for 2018



The tool is currently featured by:



SAI was invited to present the Stories in Science project at the UNESCO International Symposium and Policy Forum in Bangkok, Thailand. (SAI Co-Founder Fanuel Muindi, left, poses for a photo with other attendees at the conference)





SciReach (Project Lead: Ben Marcus)

Mission: To host a community for those who are passionate about science communication and outreach to learn about and from each other's initiatives to get inspired, grow, and collaborate.

Goals:

- Build the world's largest curated database of science communication and outreach initiatives
- Foster a dynamic community where science communicators discuss and review each other's efforts, network and collaborate, and share tips and ideas for improving their craft
- Become an easily accessible resource for students to find inspiration and opportunities to pursue their passion for science communication

How we are assessing impact:

- The prevalence of universities featuring SciReach in their career development materials and on their websites
- SciReach's ranking in Google search results
- Unique monthly visitors to our listings and total number of visitors to our blogs
- The frequency at which visitors review initiatives in our database
- The frequency at which visitors add listings to our database and claim their initiatives
- Rate of increase in Twitter followers and Facebook follows

Metrics of 11/12/18:

Number of initiatives in database: 256

Domain Authority: 11

Linking Domains: 13

Inbound Links: 44

Ranking Keywords: 45

Twitter Followers: 582



Facebook Follows: 19

Institutions Featuring SciReach on their Websites: 3

Monthly Unique Visitors: 224*

*Jan-Oct 2018, minus one month (May 4 - June 4) because Google Analytics was broken

Next steps:

- Continue building the database
- Continue publishing blogs on a monthly basis, potentially post more frequently
- Build content pages with lessons/tips on improving science communication tools
- Publish a monthly newsletter to promote listings, our blogs, and encourage science communicators to list/claim their initiatives and review others
- Continue growing SciReach's domain authority by getting it linked to on more websites
- Pitch contributed articles about SciReach to the media
- Apply for grants to support growing the website

Challenges:

- Low staff/limited time to promote the website, apply for grants, and pitch the media
- Low staff/limited time to host events related to SciReach
- Limited time to network with influencers and supporters
- Most universities don't have a clear interest in our mission



Her STEM Story (Project Lead: Prasha Sarwate)

Her STEM Story is a podcast platform that spotlights and explores the neglected voices of women in STEM. We are using the power of storytelling to engage women, especially minorities, across diverse STEM career paths regarding their struggles, successes, advice, and everything else in between. We are working to close the gender voice gap in STEM fields. Since starting in November 2017, Her STEM Story has built a great community. Following are some of the achievements:

-Organic Followers

1. 2520 on Twitter
2. 870 on Instagram
3. 300 on FB
4. 1000 on LinkedIn

-Downloads/ Website

5. 3800 downloads
6. 36 episodes (40mins approx. for each episode)
7. 20 plus blog posts
8. 150 mailing list subscribers

-Events/ Featured

9. Organized 1 international online conference with 7hrs of talks with 10 speakers and 25 attendees.
10. Keynote speaker at the Pioneer Valley Women My STEM Story event.
11. Hosted Black History month series
12. Downloads have doubled in last 4 months.
13. Featured in Super Cool Scientist Book #2 (August 2018)
14. Featured on NRI Woman Podcast (Oct 2018)
15. Featured on Anxious Rebel Podcast (July 2018)
16. Wrote the foreword for Her Engineering Career (Nov 2018)



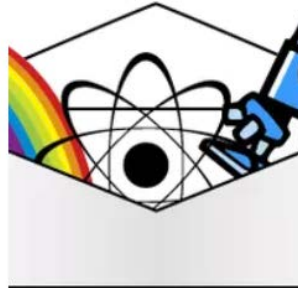
Advising Division

Our main goal for the Advising Division at SAI is to provide analysis and feedback for organizations engaged in promoting science education and dissemination around the world. Through our experience and training in science, our team is able to assist in providing diverse feedback to individuals and organizations for their projects/initiatives. This may include mission statement analysis, project-market fit assessment, and general promotion/advocacy.

Here are some of the projects we have taken on (Click on some of the images to learn more about the organizations)



Grad Spark



Letters to a Prescientist



Below are some of the questions we ask all organizations in order to help us make the selection on which one to advise:

1. Describe the problem or community need that the project addresses.
2. Describe what other organizations are doing to address this problem.
3. Describe the project's mission and objectives and how they will be met.
4. What is unique and innovative about your proposal? What makes it big and bold?
5. Provide a brief history of the project. What makes you the ideal person/team to lead this project?

6. Who will benefit from this solution? (what specific population of individuals)
Where?
7. Provide an analysis of the project's risks and limitations, including how these factors will be addressed or minimized
8. Describe the project timeline and budget justification.
9. Please describe how impact will be assessed. How will you know you are successful?
10. If the project is successful, the world will be better off because...

Financial Position

For FY 2017-18 (July 1, 2017 – June 30, 2018)

Below is our financial position at FY2017-18 closing. We have no liabilities and our main restricted fund, Stories in Science, leads in total available funds.

Account Number	Account Name	Amount
<u>Assets</u>		
1000	Checking	2,750.27
Total Assets		2,750.27
<u>Liabilities</u>		
Total Liabilities		0.00
<u>Equity</u>		
3000	General Fund - Fund Balance	1,989.69
3102	Stories in Science Fund Balance	757.97
3105	SciReach Fund Balance	2.61
Total Equity		2,750.27
Total Liabilities + Total Equity		2,750.27

Income Statement by Fund

For FY 2017-18 (July 1, 2017 – June 30, 2018)

Below is the breakdown of income and also expenses across the main accounts for FY2017-18. No contributions were made into the Endowment fund, which are unrestricted.

Account Number	Account Name	General Fund	Stories in Science	Endowment Fund	SciReach	Advising	Her STEM Story
Income							
4000	Contributions Income	2,645.43	527.70	0.00	2.61	0.00	0.00
Total Income		2,645.43	527.70	0.00	2.61	0.00	0.00
Expense							
5201	Mailing	7.45	0.00	0.00	0.00	0.00	0.00
5100	Bank Fees	0.00	16.10	0.00	0.00	0.00	0.00
5568	Email Services	56.51	0.00	0.00	0.00	0.00	0.00
6020	Accounting Services	65.36	0.00	0.00	0.00	0.00	0.00
6200	State Fees	58.50	0.00	0.00	0.00	0.00	0.00
5702	Travel (Taxi, Parking, etc)	33.00	0.00	0.00	0.00	0.00	0.00
5310	Website Hosting	52.91	0.00	0.00	0.00	0.00	0.00
5567	Website Plugins	187.99	153.23	0.00	0.00	0.00	0.00
6000	Website Development	229.50	51.00	0.00	0.00	0.00	0.00
5569	Online Marketing (Twitter, Google etc)	37.76	0.00	0.00	0.00	0.00	0.00
5570	Printing (Books, Research Posters, etc)	68.35	195.40	0.00	0.00	0.00	0.00
Total Expense		797.33	415.73	0.00	0.00	0.00	0.00
Net Income (Loss)		1,848.10	111.97	0.00	2.61	0.00	0.00
Summary							
Beginning Fund Balance		141.59	646.00	0.00	0.00	0.00	0.00
+ Other Fund Balance Movements		0.00	0.00	0.00	0.00	0.00	0.00
+ Net Income / (Loss)		1,848.10	111.97	0.00	2.61	0.00	0.00
= Ending Fund Balance		1,989.69	757.97	0.00	2.61	0.00	0.00

By the Numbers (07/2017-06/2018)

3 Divisions



- Research
- Development
- Advising

Publications

1 Book 4 Articles

Projects

Development Division

Journal of Stories in Science

SciReach Database

Her STEM Story Podcast
FY18-19

Drawn 2 Science
FY18-19

Animated Reviews
FY18-19

4 Social Media Accts.

1-2%
Engagement Rate

Active Members

7-10

Conference Attendance

3

Assets
\$2750

All Volunteers

Domestic + International

Institute Members

All the members are currently volunteers. They donate their time to advancing the SAI mission. Below are their names, when they joined and the current affiliation. Please visit our website to learn more about them.

Executive Office	Date Joined	Current Affiliation
Fanuel Muindi, PhD	2013	Harvard University (Asst. Director)
Jessica Tsai, MD., PhD	2015	Fellow at Dana-Farber/Boston Children's Hospital
Board of Trustees	Date Joined	Current Affiliation
Fanuel Muindi, PhD	2013	Harvard University (Asst. Director)
Jessica Tsai, MD., PhD	2015	Fellow at Dana-Farber/Boston Children's Hospital
Moytrayee Guha, MPH	2013	MGH
Nathan Vanderford, PhD, MBA	2016	University of Kentucky College of Medicine
Scholars	Date Joined	Current Affiliation
Jessica Rauchut, MS	Mar-17	PennState - Scientist
Michelle Dookwah, MS	May-17	UGA - Grad Student
Aiza Kabeer, BS	Sep-17	MGH - Research Associate
Chinmoyee Karmakar, MS	Sep-17	Brandeis University
Ben Marcus, PhD	Oct-17	Illinois Science Council
Lakshmi Ramachandran, PhD	Oct-17	Program Manager, DUKE-NUS (Singapore)
Brooke Tata, PhD	Oct-17	Phd UBuffalo - Scicomm @ NUSingapore
Sean McCaffery, MS	Aug-17	UMass Lowell - Now @Harvard's PEAR Institute
Samuel Shaffer, MS	Nov-17	U of Florida - Now @INSPIRICA, Expert Tutor
Matthew Ellis, PhD	Nov-17	Lab Scientist, Ohio Department of Health
Prasha Sarwate, ME	Oct-18	General Cable
Advisory Board	Date Joined	Current Affiliation
Jean Njoroge (PhD)	2016	Texas A&M
Susi Varvayanis, MS	2016	Cornell University
Christine Ortiz, PhD	2016	Massachusetts Institute of Technology
Joseph B Keller, PhD	2015	AAAS Fellow
Dominic Mao, PhD	2018	Harvard University

Donor Appreciation

We would like to take this opportunity to thank all of our donors this past year (July 1, 2017 – June 30, 2018) for all their support.

Dorothy Barr

Addgene

Jiang He

Fanuel Muindi & Moytrayee Guha

Would you like to contribute to our projects? Please visit us online at [Give to SAI](#) for additional details.

Institute Contact

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