

# Science Alliance Leadership Training (SALT) Summer 2017 Pre/Post Questionnaire Comparative Report

### KNOWLEDGE CAPTURE PROGRAM PAST Foundation

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Science Alliance Leadership Training (SALT) Summer 2017 Pre/Post Questionnaire Comparative Report

#### Introduction

This report provides a comparative analysis of the pre- and post-questionnaire conducted as part of the Science Alliance Leadership Training (SALT) Program conducted by The New York Academy of Sciences (NYAS) during the summer of 2017. The five-day training program involved (30) graduate students from fourteen colleges and universities who are pursuing careers in science, technology, engineering and math (STEM) fields. The SALT program is designed to build skills in leadership, communication, conflict resolution, and team dynamics. During the fiveday training program, the PAST Foundation conducted an online, anonymous pre- and posttraining questionnaire, providing SALT fellows the opportunity to voluntarily give input on expectations of the program (pre-training questionnaire), as well as share their experience and impact of the training program at its conclusion (post-training questionnaire).

#### Methodology

The questionnaires were designed to collect both quantitative and qualitative data consisting of Likert, range and open-ended questions. Appendix A presents the pre/post question sets. The questionnaires were administered via a secure web-based platform (SurveyMethods) designed for conducting confidential and anonymous questionnaires.

The pre-questionnaire included (23) questions and was conducted on the morning of July 10, 2017, day one of the SALT training program. A preliminary report was generated the same day and provided to program facilitators for review, allowing them to gain insights on the group of SALT fellows at the start of the training program. A total of (29) respondents completed the pre-training questionnaire.

The post-training questionnaire was completed by (29) respondents over a period of 17 days, beginning July 18 and ending on August 3, 2017. The post-questionnaire consisted of (28) questions including questions to allow SALT fellows to provide feedback and comments on the specific activities and content covered during the five-day program.



The post-training questionnaire also offered SALT participants the opportunity to provide "testimonials," describing their experience and impact of the training program. Nine individuals (31%) selected this option, providing a personal statement about the impact of the SALT training program with the understanding that their personal statement would be used to support outreach to other graduate students to encourage participation in future SALT training events. Appendix B presents the testimonial statements.

#### Questionnaire Analysis

The SALT fellows were selected from a range of fields with highly diverse career interests. Among attributes of the SALT fellows, most (76%) had demonstrated a willingness and interest in organizing campus activities, including round tables, speaker presentations, etc., to participate in dialogue and sharing knowledge in areas of academic interest. Additionally, 83% indicated that they had given presentations at professional conferences. Among the (29) SALT participants, fellows reported membership in (28) professional organizations, including NYAS. Active membership in professional organizations suggests that SALT fellows have begun exploring networking interests to gain exposure for possible career development (see Appendix C: SALT Fellow Memberships in Professional Organizations).

Finally, over half of respondents indicated they had submitted a paper for publication in a peer-reviewed journal (57%), and/or had either co-authored or held joint authorship with two or more colleagues in producing a professional paper for publication (59%). These achievements as graduate students suggest that this group of individuals has already begun exploring communication of science within their field, and with additional skills could gain confidence and ability to continue to increase their ability to conduct effective communication, including media, public relations, as well as other modes of communicating about emerging and relevant technical and scientific knowledge for broad consumption by the public.

All fellows are Ph.D. students and will be entering the field and begin building their post-graduate careers beginning in 2017 and continuing through 2020. Table 1 shows that 59% (n=17) of the fellows will enter the field in the next two years, which suggests that the timing of the SALT training occurred within a short-term period immediately preceding completion of their Ph.D., and are at a point in their professional development where they are likely to be seeking, or currently pursuing employment or post-doctoral positions.

TABLE 1: SALT Fellows
Ph.D. Expected Date of Award
(n=29)

Year Degree Expected	Number of SALT Fellows
2017	6
2018	11
2019	4
2020	4
Not Specified	4



In response to the pre-training question, "Which best reflects your current career interest?" SALT fellows were asked to choose their top three areas of interest. Over half (55%) selected "applied research," followed by just under half indicating an interest in an academic career in higher education (45%). Table 2 presents a list of ten career areas of interests.



#### Table 2: Which best reflects your current career interest? Please select top three choices (Pre-training Questionnaire; n=29)

Respondents were also given the opportunity to list other areas beyond the ten choices offered. These include:

- Science communication (n=4)
- Science writing/Publication (n=3)
- Data science/industry data science (n=2)
- Clinical trials
- Business development
- Research and Development
- Medical communication
- Media/Public Relations

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While the two top choices were "applied research" or "higher education," interest in careers outside academia/research involve careers in science policy (Domestic Policy, n=10; International Policy, n=4) or entering the political arena (n=4), potentially involving legislation informed by science. Pursuing policy and legislative careers can impact local to national and global issues that are among the most challenging facing society currently and into the future. The possibilities for the SALT fellows to apply their leadership skills in these particular areas show that individual aspirations can potentially impact numerous spheres of influence and levels of impact in communicating science to inform decision makers, become decision makers, and work during their careers to further societal goals to make informed choices.

SALT fellows expressed multiple goals and expectations about the training experience. Table 3 shows a list of eight pre-defined potential outcomes. Over half of respondents (62% to 93%) selected seven of the eight options listed. These choices were aligned to the program description and reflect aspirations for gaining leadership skills, associated benefits in success of attaining career goals, augment science expertise and skill sets, as well as building relations for networking among STEM leaders.



#### Table 3: What attracted you to apply to SALT? Please choose all that apply (Pre-training Questionnaire; n=29)





In looking at the pre-training expectations for gaining leadership skills, Table 4 shows that 55% of SALT fellows stated that they expected to gain strong leadership skills. Post-training response shows that roughly the same number of individuals (61%) felt that they had grown in their leadership skills by the end of the training. However, when asked about specific aspects of the training, fellows showed significant increases in self-assessment of increased confidence and in pursuing career related goals. Table 5 shows that SALT fellows saw significant benefits and growth of interpersonal skills in communication and ability to engage effectively with their peers.

#### Table 4: Do you think you [will gain/gained] strong leadership skills as a result of your experience at SALT?

Pre-Training	Post-Training
55%	61%

# Table 5: I strongly agree with the following statements:(Post-training Questionnaire; n=28)



Providing a structured process in the form of a Leadership Development Plan (LDP), and facilitation and guidance in exploring potential skills, situations, and strategies for engaging more effectively as professionals helped to grow confidence in planning and implementing career goals.



Table 6 shows an increase of 38% from the pre-training expectations of the SALT Program to the post-training experience. Fellows reported gaining skills to support attaining career goals. Table 7 also shows post-training self-assessed gains in reflecting on career aspirations and strategies for professional engagement.

SALT will hel	it I learned at p me achieve er goals
Pre-Training	Post-Training
41%	79%

# Table 7: In light of the knowledge acquired at SALT, I have ...Please choose all that apply(Post-training Questionnaire; n=28)





In response to open-ended questions, SALT fellows identified additional benefits that they experienced through the training activities. Areas of personal growth include ways in which the training helped to redefine the importance of self-assessment in work settings, and gains in strengthening interpersonal communication skill sets. These include:

- Self-awareness
- Coping with anxiety
- How stress influences behavior
- Learning style preference
- Developing confidence
- Speaking in public
- Courage and openness to try new things
- Challenging oneself
- Understanding leadership through being a team member
- Learning to "fail gracefully"
- Sense of agency

In experiencing teamwork and engaging with others in a cross-disciplinary context, SALT fellows also identified important aspects of strategies that can improve the quality of engagement with colleagues through insight on managing and leading others engaged in common endeavors. These include:

- Understanding group dynamics and team member roles
- Accepting feedback from peers
- Managing group dynamics
- Dealing with challenging personalities
- Working with strong personalities
- Facing uncomfortable situations head on

The overall experience of the 2017 SALT fellows reflects self-assessment of significant gains reported through the pre- and post-questionnaire. Additionally, the "testimonials," provided by nearly one-third of the SALT participants (n=9) also informs evaluation of impacts and outcomes in very personal terms. These testimonials appear in Appendix C, and reflect an authentic range of perceptions of the impact of the SALT training and potential impacts for career development. Additionally, SALT fellows will have continued support through optional participation in monthly webinars where fellows can share progress with their cohorts in implementing their LDP, and extend their exposure to guided facilitation of career and leadership strategy development. The PAST Foundation will provide support of the webinars offering additional insight on the issues that emerge over time as SALT fellows apply their training and newly formed skills, and explore more impactful engagement in pursuing their professional careers.

### Knowledge Capture



Science Alliance Leadership Report (SALT) Summer 2017 Pre/Post Questionnaire Comparative Report

> Appendix A: SALT Questionnaires SALT Pre-Implementation Survey Questionnaire SALT Post-Implementation Survey Questionnaire

<u>Appendix B:</u> SALT Fellows Testimonial Statements July 2017

<u>Appendix C:</u> SALT Fellows Membership List of Professional Associations







# Appendix A: SALT Questionnaires

SALT Pre-Implementation Questionnaire SALT Post-Implementation Questionnaire





#### SALT Program Pre-Training Questionnaire

Page 1 - Profile Questions

1.	What gender do you identify with?
	OMale

Omaio

OFemale

OOther

2. What degree are you currently working toward? Please specify the year you expect to earn your degree.

3. What is your major field of study?

4. Are you planning to seek a higher degree or post-doc beyond your current program?

O Yes O No

5. Are you a member of a professional association?

O Yes O No

6. If you are a member of a professional association, please list below.



	3			Knowledge Capture
7.	Have you g	ven presentations at a p	professional conference?	
	O Yes	O No		
3.	Have you pa tables)?	articipated in organizing	campus events related to your fi	eld of study (e.g. speakers, panel discussions, roun
	O Yes	O No		
9.	Have you s	ubmitted a research artic	cle for publication in a peer-revie	wed journal?
	O Yes	O No		
10.	lf you have	submitted a research ar	ticle for publication in a peer-revi	ewed journal, were you:
	OAuthor			
	OCo-Author			
	OLead Auth	or with two or more collea	agues	
	O If other, p	lease describe		

#### 11. Which best reflects your current career interest? (Please select up to three options)

□ Academic (K-12)

□ Academic (Higher education)

□ Applied Research



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- Basic Research
- Experimental Development
- Clinical Research
- Clinical Practice
- □ Policy (Domestic)
- □ Policy (International)
- Delitics/Legislator
- □ If other, please describe





### Knowledge Capture

Page 2 - SALT Program

12. How did you learn about the SALT Program? Please choose all that apply.

- □ Newsletter
- □ Website
- □ Invitation
- $\hfill\square$  Academic advisor
- Department posting
- □ Referred by fellow student
- □ If other, please describe briefly

#### 13. What attracted you to apply to SALT? Please choose all that apply.

- □ Gain access to a network of STEM leaders
- Develop stronger leadership skills
- Build confidence in leadership skills
- □ Help achieve career goals
- Expand my views on career options
- Develop skills to augment scientific training
- Establish potential individual opportunities for research collaboration
- Become part of a SALT group network of scientists
- □ If other, please describe briefly





#### 14. What was the most challenging aspect of the SALT application?

- O Leadership essays
- O Letter of reference
- O Completing a 2-page resume
- O Candidate statement
- O Demographics questions
- OPI consent form
- ONothing, the application was easy to complete
- O If other, please describe briefly

#### 15. The communications I received to help me prepare for participation in the SALT Program were helpful.

- O Strongly agree
- OAgree
- ONeutral
- ODisagree
- O Strongly disagree

#### 16. Based on the SALT Program description I anticipate that I will increase my ability to develop leadership skills.

- O Strongly agree
- OAgree
- ONeutral
- ODisagree
- O Strongly disagree





17. Based on the SALT Program description I think the training experience will improve my ability to see myself as a leader in whatever professional career I may pursue.

O Strongly agree

OAgree

ONeutral

- ODisagree
- O Strongly disagree
- 18. Based on the SALT Program description I think the training experience will help me develop strategies to achieve my career goals.

O Strongly agree

OAgree

ONeutral

ODisagree

O Strongly disagree

19. What is the most important skill or experience that you hope to attain from your participation in the SALT Program?

20. What challenges do you anticipate in your process to achieve leadership skills and increase your ability to become a leader?





- 21. Based on your experience thus far in applying to the SALT Program, what is the likelihood that you will attend future events presented by the Science Alliance?
  - O Highly likely O Somewhat likely O Neutral
  - O Somewhat unlikely
  - OVery unlikely

#### 22. How interested are you in becoming an ambassador of the New York Academy of Sciences?

- OVery interested
- OInterested
- ONeutral
- ONot interested
- 23. How likely are you to recommend the New York Academy of Sciences to other students and colleagues as a resource for professional development?
  - O Highly likely
  - O Somewhat likely
  - ONeutral
  - O Somewhat unlikely
  - OVery unlikely





#### SALT Program Post-Training Questionnaire

Page 1 - Profile Questions

#### 1. What gender do you identify with?

OMale

OFemale

OOther

#### 2. What is your ethnicity?

- OAsian-American
- **OBlack/African American**
- O Hispanic/Latin(o/a)
- ONative American/Alaskan Native
- OWhite/Caucasian
- O If other, please describe

3. What degree are you currently working toward? Please specify the year you expect to earn your degree.

#### 4. What is your major field of study?





### Knowledge Capture

#### 5. Are you planning to seek a higher degree or post-doc beyond your current program?

O Yes O No

6. Which best reflects your current career interest? (Please select up to three options)

- □ Academic (K-12)
- □ Academic (Higher education)
- □ Applied Research
- Basic Research
- Experimental Development
- Clinical Research
- Clinical Practice
- □ Policy (Domestic)
- □ Policy (International)
- Delitics/Legislator
- □ If other, please describe





Page 2 - Overall Program Experience



9. Do you think that after SALT you have access to a strong and diverse network of STEM leaders?

O Strongly agree

OAgree

ONeutral

ODisagree

O Strongly disagree

10. Do you think that after SALT you developed stronger leadership skills?

O Strongly agree

OAgree

ONeutral

ODisagree

O Strongly disagree





#### 11. After completing SALT, rate your confidence in your ability to step up as leader:

OVery confident

OConfident

O Somewhat confident

O Slightly confident

O Not at all confident

#### 12. What I learned at SALT will help me achieve my career goals.

O Strongly agree

OAgree

ONeutral

ODisagree

O Strongly disagree

#### 13. In light of the knowledge acquired at SALT, I have (please choose all that apply):

- $\hfill\square$  Altered the course of my career trajectory
- $\hfill\square$  Reinforced my interest in pursuing an academic career
- □ Reinforced my interest in pursuing a non-academic career
- $\hfill\square$  Started to develop other skills to strengthen my scientific training
- Established potential individual opportunities for research collaboration
- Become part of a SALT group network of scientists
- □ None of the above
- □ If other, please describe briefly





#### 14. What's the most valuable idea, skill or lesson that you took away from the SALT Program?

#### 15. What's the most challenging/unexpected but helpful lesson, skill or idea learned at SALT?

16. Please rate your level of agreement or disagreement with the following statements:

	Agree	Neutral	Disagree
I was able to bond with other SALT students during the program	0	0	0
I feel more comfortable now sharing ideas and thoughts with other SALT fellows	0	0	0
I feel more comfortable now communicating with my colleagues and peers	0	0	0
After SALT, I feel more confident about my ability to engage effectively with my colleagues	0	ο	0

#### 17. If your colleagues were interested in improving their leadership skills, would you recommend SALT to them?

OYes

ONo

O Not sure





# Knowledge Capture

Page 3 - Logistics

#### 18. Use the scale below to rate your overall opinion about the organization and logistics of the SALT program:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The program ran smoothly	0	0	0	0	0
The program was well organized	0	0	0	0	0
The communications before and during the program were helpful	0	0	0	0	0
The space was appropriate for the exercises	0	Ο	0	0	0







Page 4 - Content

#### 19. Please rate the quality and effectiveness of the individual SALT sessions:

	Excellent	Good	Average	Below average	Poor
Day 1: Improv sessions	0	0	0	0	0
Day 1: SALT + SEISMIC networking session	0	0	0	0	0
Day 1: Keynote lunch: Dr. Sonya Dougal	0	0	Ο	Ο	0
Day 2: History of your name	0	0	0	0	0
Day 2: Managing change	0	0	0	0	0
Day 2: Experiential Learning Theory	0	0	0	0	0
Day 2: Building a Team Charter	0	0	0	0	0
Day 2: B.A.R.T	0	0	0	0	0
Day 2: Build a tower	0	0	0	0	0
Day 2: Spiral	0	0	0	0	0
Day 3: SALT + SEISMIC lunch	0	0	0	Ο	0
Day 3: Preparing for The World Event	0	0	0	0	0
Day 4: Running The World Event	0	0	0	0	0
Day 4: SALT + SEISMIC mentoring session on projects	Ο	0	0	0	0
Day 4: LDP basics	0	0	0	0	0
Day 5: Group debrief session	0	0	0	0	0
Day 5: LDPs readings	0	0	0	0	0
Day 5: Keynote Lunch: Dr. Stephanie Pfirmann	0	0	0	0	0
Day 5: Closing Ceremony	0	0	0	0	0
Day 5: Readings of SEISMIC projects	0	0	0	0	0





20. How confident are you about your Leadership Development Plan (LDP) and your ability to reach your career goals based on the actions/steps identified in your LDP?

OVery confident

- OConfident
- O Somewhat confident
- O Slightly confident
- ONot at all confident







Page 5 - Instructors and Speakers

ate your overall op	internation about the inc			
Excellent	Good	Average	Below Average	Poor
0	0	0	0	0
0	0	0	0	Ο
0	0	0	0	0
	Excellent	Excellent Good	0 0 0 0 0	ExcellentGoodAverageBelow AverageOOOOOOOO

#### 21. Using the scale below, rate your overall opinion about the instructors:

#### 22. What did you like most about the SALT Program?

#### 23. What did you like least about the SALT Program?





24. Do you have ideas on how to improve the SALT Program for the future? If so, please use the space below to briefly list your ideas.

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Page 6 - Science Alliance Questions

#### 25. How likely are you to attend future events presented by the Science Alliance?

- O Highly likely
- O Somewhat likely
- ONeutral
- O Somewhat unlikely
- OVery unlikely

#### 26. How interested are you in becoming an ambassador of the New York Academy of Sciences?

- OVery interested
- O Interested
- ONeutral
- ONot interested
- 27. Are there additional ways that The Academy and Science Alliance can support your professional development? Please use the space below to briefly list your ideas.

28. Are you interested in promoting the program by sharing your testimonial to be used in future marketing materials?

O Yes O No





# Appendix B: SALT Fellows Testimonial Statements

July 2017



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### SALT Alumni Testimonials, July 2017

PhD SALT provided me with a safe and collaborative space in which I was able to push myself to become a better person, communicator, teammate, and leader. This program gave me the boost that I needed to own up to my career aspirations and identify avenues I can take to achieve my goals.

SALT Alumni Testimonials

PhD, Pharmaceutical Sciences with concentration in Toxicology

The SALT program was a beautiful experience. I discovered my strengths and learned to accept and work on my weaknesses. I have no doubt that I am a more confident person, fully capable of achieve any task ahead of me. What's truly amazing, is I've made so many new friends and I'm truly grateful for the opportunity to meet so many wonderful people.

SALT Alumni Testimonials

#### PhD, Cancer Biology

I had the chance to meet amazing people and to communicate and collaborate with them. The mentors were great and helped us a lot to do our self-assessment and to work better in a team.

SALT Alumni Testimonials

PhD, Biological Engineering with concentration in

This program is like nothing you ever expect. The amount that I

learned about myself and how I impact those around me, it was

simply stunning. This was the most different experience I have

ever had in professional development and I could not

recommend this experience enough!

SALT Alumni Testimonials

#### PhD, Biomedical Engineering

SALT is a wonderful, deeply educational experience. Among the many things you learn are the importance of understanding the needs and wants of your team in order to optimally collaborate with them to achieve common goals. The instructors put tremendous effort into this program and are invested in what their students are taking from it. I would recommend this program to any young scientist or graduate student.

SALT Alumni Testimonials

#### PhD, Molecular Cellular

SALT training has not only provided me with the confidence to seek out new leadership opportunities, but also the skill set to become an effective leader. Through this program, I understand the roles that individuals of a team play in the pursuit of a common goal as well as how to benefit from everyone's strength and weakness. Over the course of the program, my fellow SALT trainees and I have endured much together and I am proud to say that I have gain 29 friends in the process.

SALT Alumni Testimonials



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#### SALT Alumni Testimonials, July 2017

PhD, Pharmaceutical Science with concentration in Toxicology

The SALT Program provided me with a safe environment to see my strengths and weaknesses as a leader. It allowed me the space to do the necessary introspection, without fear of judgment, and it equipped me with the resources for improvement. Although intense, it was very well organized. Among other things, we discussed learning modes, and I saw how my particular learning style, influenced my role as a leader, and the overall impact it could have on the team. Lectures and exercises on team dynamics clearly demonstrated that there are unconscious processes that take place in groups that can definitely affect the performance of the group. There was so much to be learnt from the program, but there were several things that resonated with me: it is vital for a leader to create an environment that is psychologically-safe for group members; it is important that a leader possesses self-awareness, and emotional intelligence; and as a leader, I should also be able to receive and accept feedback, even if it is not positive, in order for me to grow. There were moments of uncertainty for me; I could not figure out exactly what the next step would be, or precisely what I was supposed to accomplish in a given task. There were times when some exercises challenged me, or even left me feeling that I was being broken down BUT because of the secure environment that was created, I learnt to trust the process, to trust the team, and most importantly, I learnt to trust me. This Program is an absolute essential for leaders in Science, since it will not only furnish them with the knowledge and skills necessary to effectively navigate the science environment, but it will help build strong, empathic leaders who understand that change begins with them.

SALT Alumni Testimonials

#### PhD, Pharmaceutical Science with concentration in Toxicology

SALT was a great experience that I feel every graduate student needs to experience. The program was structured perfectly in order to make us look into ourselves in order to better improve as a leader and definitely a better person. Being an introvert I went into the program with a lot of reservations and a little intrigue. The program was intense and we were kept on our toes through the week. By the end of the week, I had made 33 new friends that I know I can rely on through my career and my life. SALT definitely taught me skills that I know will be extremely useful in how I shape my career as a future leader in the Scientific community.

SALT Alumni Testimonials

#### SALT Alumni

SALT was an amazing program, unlike any other experience I have participated in. Not only was it a nice break from lab work for a week, I got to meet some incredible people and really learned to connect with them. All of the activities were geared to help scientists come out of their shells, connect with their emotions, and let go when making new friends and connections. The instructors put us in situations to help us learn things that I don't think could be taught in a typical classroom setting. If you are a scientist that has a hard time connecting with your emotions, or forming personal relationships when not discussing science, do this program!

SALT Alumni Testimonials





# Appendix C:

## SALT Fellows Membership List of Professional Associations









#### Professional Association Memberships Identified by July 2017 SALT Participants

American Association for the Advancement of Science AAAS (2)
American Association of Immunologist (AAI) (2)
American Institute of Chemical Engineers (AIChE)
American Chemical Society (2)
American College of Toxicology (ACT)
American Institute of Biological Sciences
American Physical Society
American Society for Biochemistry and Molecular Biology
American Society of Mechanical Engineers
American Thoracic Society
American Public Health Association (APHA)
American Society for Virology (ASV)
Biomedical Engineering Society (2)
Genetics Society of America
Global Invertebrate Genomic Alliance
Korean-American Scientists and Engineers' Association
Mid-Atlantic Society of Toxicology (MASOT) (3)
New York Academy of Sciences (NYAS) (29)*
Optical Society of America
Sociedad Española de Biología Evolutiva
Society for Biomaterials
Society for Neuroscience
Society for the Study of Evolution
Society of Biomedical Engineers
Society of Systematic Biologists
Society of Toxicology (SOT) (3)
Society of Women Engineers
Systematics Association

\*All SALT Participants are de facto members of the New York Academy of Sciences

