

Education Staff Report 3/9/18

Catrina Adams, Education Director

Background

Education staff is mostly supported by NSF funding for the Digging Deeper/PlantingScience teacher/scientist professional development and online mentoring project (through 2019/2020). Jodi Creasap Gee (Educational Technology Coordinator) is supported 100% and Catrina Adams (Education Director, grant PI) is supported 70%. Supporting and growing this mission-driven, extensive, and long-standing partnership between BSA, BSCS and 18 scientific societies is a strong focus of education staff.

Besides PlantingScience, the Education Director supports the Education Director-At-Large and Education Committee Chair toward sustaining existing partnerships and initiatives (e.g. the Life Discovery Conference and PlantED Digital Library) as well as helping to secure and support new partnerships and initiatives (e.g. the QUBES/BSA Faculty Mentoring Network, BRIT-BSA collaboration and education travel sponsorships for Botany 2017 conference in Fort Worth).

The Education Director also works closely with BSA education stakeholders to set a strategic agenda for BSA education and to coordinate and promote member efforts in alignment with strategic goals towards fulfilling the society's educational mission.

Accomplishments in 2017

Existing Grants:

Digging Deeper NSF Grant (1502892, \$2,884,857, 2015-2019) (DD)

- Fall 2017 largest PlantingScience session EVER: 69 teachers, 815 projects, 2500 students
- successful DD workshop in Colorado Springs: grant-funded PD and data collection for primary efficacy study has ended
- collaboration with Science Gateways Community Institute for free user experience consulting on PlantingScience.org led to major interface improvements for teachers
- website improvements ongoing: new online poster session under development
- wildly successful scientist mentor recruitment drive: asked for 100 mentors, got 300+ for a total mentor pool of 650+
- preliminary DD data indicate statistically significant effect on student achievement and attitudes about scientists, publications underway to meet publication requirements of What Works Clearinghouse "recommended without reservations."
- study sample very (95%) generalizable to entire US population of high schools.
- STEM for ALL Video Showcase video wins Facilitator's Choice Award
- collected large amounts of video from professional videographer as well as some classroom footage for next year's video and other recruitment/dissemination efforts.
- have ~40K of participant costs funds left for widespread participant-led dissemination.
- NABT will help promote: signed Inquiring About Plants books to award-winning teachers and some free/discounted advertising at NABT 2018 San Diego

American Society for Agronomy: ASA Reinvests (\$30,220, Jamie Foster PI, **2015-2017**)

- successful launch of Agronomy Feeds the World module. Live on the website with participating teachers this Spring
- TriAg societies have agreed to support 5 MPST for 2018/2019 (but without meeting registration discount)
- ASA will promote PlantingScience alongside other educational outreach opportunities at educator and scientific conferences where they exhibit including NSTA.

Grant Proposals under consideration:

PlantingScience F2 Grant (\$4,448,163, Catrina Adams PI, 2018-2023)

- leverages existing partnership with BSCS, need for replication studies in education research
- tests relative efficacy of in-person and online collaborative PD, brings in advisors from QUBES with experience facilitating faculty mentoring networks
- win-win: if in-person PD proves significantly better, that's justification for financial support. If no significant difference, then we know a cheaper, more sustainable model will work

NSERC PromoScience (\$200,800, Julia Nowak, CBA/ABC PI, 2018-2021)

- third try, reduced budget. Includes support for growing the program in Canada and salary for a Canadian PS Director

Partnerships/Initiatives:

PlantED Digital Library/Life Discovery – Doing Education Conference

- theme of 2017 conference Data: Discover, Investigate, Inform
- small NSF grant was obtained to support travel for increasing the diversity of participants at the LDC. Travel grant awardees participated in a LDC-QUBES FMN with BSA-sponsored participants were awarded title of “BSA Education Scholar” upon completion.

“Plants by the Numbers” QUBES/BSA Faculty Mentoring Network

- 15 faculty participating, lead by Ed committee members Phil Gibson and Paul Beardsley
- implementation of selected resources in the PlantED Digital Library, those with a strong data/quantitative literacy component
- participants awarded title of “BSA Education Scholar” upon submission of teaching notes appendix to PlantED Digital library submissions
- planning “travelling joint poster” for participants to disseminate experience at Botany and other plant biology meetings

Publications:

Elisabeth A. Desy, Catrina T. Adams, Teresa Mourad, Scott Peterson (in press) “Effect of an Online, Inquiry- and Mentor-based Laboratory on Science Attitudes of Students in a Concurrent Enrollment Biology Course: the PlantingScience Experience. *American Biology Teacher*.

Claire Hemingway and Catrina Adams (in prep)

- paper tracking the 250 MPST program early-career participants 2006-2016: commonalities in who participates, subsequent career path, subsequent society membership/service, perceived PD benefit.
- analyzing application, participation and publicly available data now.
- would like to interview selected current and previous MPST but need to secure IRB approval (likely will be ruled exempt)

Challenges to Address:

PlantingScience Partner Engagement:

- increasing engagement of existing PlantingScience partner societies
- recruiting new partner societies to PlantingScience
- recruiting teachers to PlantingScience
- PlantingScience MPST Liaison sponsorship

Research Needs:

- securing IRB to review human subjects research plan for MPST early career scientist PD/career outcomes paper

PlantED Digital Library

- increasing contributions to/use of PlantED digital library
- updating PlantED library to fix bugs and streamline
- adding DOI assignment for resources
- getting SSE more involved in partnership

Looking forward 2018-2021

Strategic Planning for Education:

- explore current education priorities with our committees and membership establishing priorities, providing mechanisms for BSA support of member education proposals and avenues for engaging members in high-priority areas.
- areas of interest to our education committee, teaching section and members appear to be: quantitative literacy/data skills, PUI and other faculty networking opportunities, getting high-quality education resources disseminated and used, providing mentoring opportunities.
- a structured conversation about strategic planning would be helpful in establishing priorities and strategies.

PlantingScience:

- **Engage fundraising/grant strategy support for PlantingScience.** Finding additional funding is critical as we move through year 3 of our 4 year NSF grant. Plan to use BSA education funds to contract with a grantwriting consultant to help refine our grant

strategy, identify additional or alternative funders, and suggest revisions to grant application drafts. Grantwriting assistance was massively helpful in rewriting our successful Digging Deeper grant.

- **Prepare visually engaging PS materials to explain the program, success and promise** to partner societies and potential funders and define partnership responsibilities and outline suggested ways to contribute.
- **Host 2019 PlantingScience/Digging Deeper advisory panel meeting in Washington D.C.**, inviting partner society representatives to participate in a sustainability discussion
- **Widely disseminate positive results of Digging Deeper study** to the research community, partners and potential partners, potential participants (scientist mentors, teachers) and to the wider community. Leverage partner organizations and engaged participants in this effort.