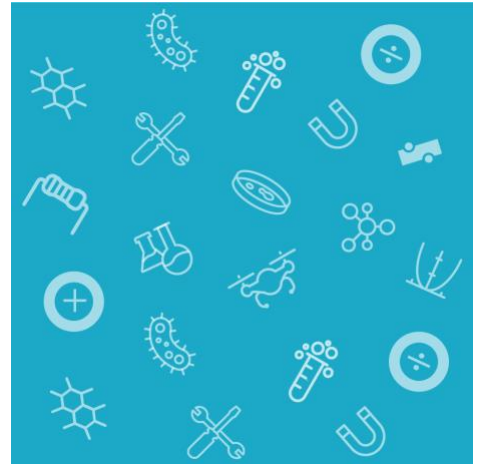


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ARMY EDUCATIONAL OUTREACH PROGRAM

JSHS

2018 Annual Program Evaluation Report Executive Summary

August 2019



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2 | Executive Summary

The Junior Science & Humanities Symposia Program (JSHS), administered by the Academy of Applied Science (AAS) on behalf of the Services, is an AEOP pre-collegiate science, technology, engineering, and mathematics (STEM) research competition for high school students. JSHS is co-sponsored by the Army, Navy and Air Force. JSHS encourages high school students to engage in original research in preparation for future STEM career pathways. In regional (R-JSHS) and national (N-JSHS) symposia, students present their research in a forum of peer researchers and practicing researchers from government (in particular the DoD), industry, and academia.

This report documents the evaluation of the FY18 JSHS program. The evaluation addressed questions related to program strengths and challenges, benefits to participants, and overall effectiveness in meeting AEOP and program objectives. The assessment strategy for JSHS included questionnaires for R-JSHS and N-JSHS participants and mentors, a focus groups with N-JSHS students, a focus groups with N-JSHS mentors, and an annual program report compiled by AAS.

Regional symposia were held in 46 university campus sites nationwide in FY18. The top five students in each region received an invitation to participate and compete at N-JSHS, an all-expense-paid trip hosted by the Services. Of these five, the top two students were invited to present their research as part of the national competition; the third-place student was invited to display a poster of his/her research in a competitive poster session; and the fourth and fifth place students were invited to attend as student delegates with the option to showcase their research in a non-competitive poster session.

All JSHS programs are designed to meet the following objectives:

1. Promote research and experimentation in STEM at the high school level;
2. Recognize the significance of research in human affairs and the importance of humane and ethical principles in the application of research results;
3. Search out talented youth and their teachers, recognize their accomplishments at symposia, and encourage their continued interest and participation in the sciences, mathematics, and engineering;
4. Recognize innovative and independent research projects of youth in regional and national symposia;
5. Expose students to academic and career opportunities in STEM and to the skills required for successful pursuit of STEM;
6. Expose students to STEM careers in the Army and/or DoD laboratories; and
7. Increase the future pool of talent capable of contributing to the national's scientific and technological workforce.

JSHS 2018 Fast Facts	
Description	STEM Competition - Nationwide (incl. DoDEA schools), research symposium that includes 47 regional events and one national event
Participant Population	9th-12th grade students
Number of Applicants	4,279
Number of Participants	3,069 Regional Participants (of whom 202 were selected to attend the National JSHS Symposium)
Number/Percentage U2 Participants	1,088 / 37%
Placement Rate	72%
Number of Adults (Mentors, Regional Directors, Volunteers – incl. Teachers and S&Es)	4,199
Number of Army and DoD S&Es	139
Number of Army/DoD Research Laboratories	48
Number of K-12 Teachers	804
Number of K-12 Schools	1,005
Number of K-12 Schools – Title I	240
Number of DoDEA Students	127
Number of DoDEA Teachers	29
Number College/University Personnel	1,072
Number of Colleges/Universities	119
Number of HBCU/MSIs	7
Number of Other Collaborating Organizations	76
Total Cost	\$1,871,919
Administrative/Overhead/Indirect/Cost Share	\$314,963
Regional JSHS Support	\$730,335
National Program	\$328,832
Scholarships and Awards	\$420,000
Other Operational Costs	\$59,084
Travel Costs – Paid for S&E's	\$18,705
Cost Per Student Participant	\$609

Summary of Findings

The FY18 evaluation of JSHS collected data about participants; their perceptions of program processes, resources, and activities; and indicators of achievement in outcomes related to AEOP and program objectives. A summary of findings is provided in the following table.

Table 55. 2018 JSHS Evaluation Findings	
Priority #1: <i>Broaden, deepen, and diversify the pool of STEM talent in support of our Defense Industry Base</i>	
There is a substantial downward trend in interest and participation when viewed over a multi-year period.	In FY18, interest in JSHS declined slightly to 4,279 initial registrations. This continues a downward trend in registrations since 2015: in FY17 there were 8,663; in FY16, 8,947; in FY15, 9,347.
	In FY18, JSHS had 3,069 students who completed their project and participated in the competition. However, this represents a 45% decrease from FY17, and continual decrease from prior years. In FY17 5,577 students were served; in FY16, 5,629; and in FY15, 5,829.
Collection of required demographic data for JSHS participants continued to be a challenge.	As in FY17, JSHS continued to struggle with gathering necessary demographic data from regional sites. In fact, data were missing for over 50% of enrolled students. There were 12 of the 46 JSHS regions that did not use Cvent for registration. Using Cvent data, the overall U2 population for R-JSHS in FY18 was 37%. By comparison, the N-JSHS U2 population was 38%.
JSHS continued a trend of enrolling a majority of female participants.	For the R-JSHS students for whom demographic data were available, slightly more than half (58%) were female and 40% were male. A majority of N-JSHS participants (59%) were female.
The ethnic/racial diversity of JSHS remains relatively constant compared to previous program years.	As in previous years, students identifying themselves as White were the largest racial/ethnic group among R-JSHS and N-JSHS participants (57% and 54% respectively). Students identifying themselves as Asian were the second largest racial/ethnic group of participants (20% for R-JSHS and 30% for N-JSHS). As in FY17, only 6% of R-JSHS students identified themselves as Black or African American (2% for N-JSHS). The proportion of Hispanic or Latino students in R-JSHS decreased slightly (5% in FY18, 7% in FY17). Among N-JSHS students, 4% identified themselves as Hispanic or Latino.
	Mentors participating in a focus group suggested ways to broaden the reach of JSHS through providing teacher supports. In particular, they suggested pairing schools and teachers with active research programs with schools serving students who are underserved or underrepresented in STEM,

	<p>encouraging schools with AP research courses to have students participate in JSHS, and getting more teachers involved by engaging the support of district level leadership and providing support and training for research. Mentors suggested that providing examples of schools that had been successful at forging mentor partnerships for JSHS might be a useful means to engaging district leadership support for JSHS involvement.</p>
<p>Students reported that they actively engaged in STEM practices in JSHS but this engagement was not significantly more frequent than in their typical school experiences.</p>	<p>Students’ reported engaging in a wide variety of STEM practices in their R-JSHS experiences. For example, 55% of students reported having worked with a STEM researcher or company on a real-world STEM project at least once in JSHS while only 42% of respondents indicated having the same experience in school. Similarly, half (50%) of R-JSHS respondents indicated they engaged in solving real world problems at least monthly in JSHS while fewer (45%) reported this type and frequency of engagement in school.</p> <p>Although there was no significant difference in engagement in STEM practices by U2 status, low SES students were significantly less engaged in STEM practices than non-SES students (small effect size).</p> <p>N-JSHS students in focus groups reported that JSHS provides more active engagement than their typical school experiences because of the opportunities to apply their STEM knowledge, gain research skills, experience a cohort of like-minded peers, the rigor of expectations, and the expertise of the judge feedback.</p> <p>There was no statistically significant difference overall, however, in students’ engagement in STEM practices in R-JSHS as compared to school. It is important to note, however, that these data may not entirely reflect the impact of JSHS as compared to typical school experiences since students may have participated in JSHS as a part of a school class and may therefore not conceptualize STEM practices in JSHS and STEM practices in school as separate phenomena.</p>
<p>Students reported gains in their STEM knowledge and STEM competencies (skills in science and engineering practices) as a result of participating in JSHS.</p>	<p>A majority (70% or more) of R-JSHS students reported medium or large gains in all areas of STEM knowledge due to their participation in the JSHS program.</p> <p>A majority (55% or more) of R-JSHS students reported medium or large gains in all but one area (slightly less than half [46%] reported at least medium gains in using computer models) of STEM Competencies.</p>
<p>Students reported gains in their 21st Century Skills as a result of participating in JSHS.</p>	<p>Approximately two-thirds or more of respondents reported medium or large gains in all areas, and large majorities (85% or more) of students reported at least small gains in all areas of 21st Century Skills. These included skills such as setting goals and reflecting on performance, sticking with a</p>

	task until it is finished, and making changes when things do not go as planned.
Students reported gains in their STEM identities as a result of participating in JSHS.	Large majorities (more than 80%) of students reported at least some gain in all areas of STEM identity, or their feelings of confidence in their ability to succeed in STEM, and nearly two-thirds or more indicated medium to large gains in each area.
<p>Priority #2: <i>Support and empower educators with unique Army research and technology resources.</i></p>	
While most mentors used a variety of effective mentoring strategies with their students, few discussed AEOPs other than JSHS with their students.	More than half of responding mentors (53%-87%) reported using strategies associated with establishing the relevance of learning activities to students, supporting the diverse needs of learners, supporting students' development of collaboration and interpersonal skills, and supporting students' engagement in "authentic" STEM activities.
	Few mentors (2%-25%) reported speaking with students about AEOPs other than JSHS. Less than a quarter (21%) discussed AEOPs with participants without referencing any specific program.
Students reported high levels of satisfaction with JSHS program components, although satisfaction ratings were somewhat lower than in FY17. Judging and feedback were areas of somewhat less satisfaction for participants.	Most R-JSHS (80% or more) students were somewhat or very much satisfied with nearly all JSHS features that they had experienced, although satisfaction levels for elements associated with presentations and judging and feedback were somewhat lower than in FY17.
	Qualitative data from both R-JSHS and N-JSHS students suggest that students particularly value the opportunity to present their research, learn about others' research, and connect with like-minded peers.
	Although few R-JSHS students expressed dissatisfaction with any R-JSHS features on the questionnaire, it is noteworthy that 11% expressed dissatisfaction with the judging process and with feedback from judges.
	Qualitative data from students regarding judging and judge feedback indicate that some participants feel that there is a lack of judges representing diverse specialties at the regional level, and that poster judging at both the regional and national level could be improved by providing more, and more specialized, judges. In addition, students valued the feedback they received from judges although R-JSHS student comments suggest that feedback may not be provided consistently across regional events.

	Qualitative data from R-JSHS students regarding program improvements focused on improvements in scheduling and organization of events and providing more speakers and interactive activities at events.
Mentors reported high levels of satisfaction with JSHS and suggested various program improvements.	More than half of mentors (57%-90%) reported being somewhat or very much satisfied with all program features they experienced. Over half (61%) had not experienced communication with AAS.
	Qualitative data from mentors indicates that mentors particularly value the opportunity for students to present their research, to connect with like-minded peers, network with STEM professionals, develop research skills, and learn about others' research.
	Qualitative data from mentors suggests that mentors believe that JSHS could be improved by measures such as improving communication, increasing publicity, improving judge feedback and diversity of judges' areas of expertise, and providing more interactive activities at events.
Priority #3: <i>Develop and implement a cohesive, coordinated and sustainable STEM education outreach infrastructure across the Army</i>	
Schools and school-based communication continue to be the primary means of student information about AEOP. Mentors learned about AEOP primarily through personal or professional contacts.	About three-quarters of R-JSHS students learned about AEOP either through their schools (52%) or through a school or university newsletter, email, or website (26%). Over half of mentors learned about JSHS either through personal contacts, including a past JSHS participant (33%) or a colleague (32%).
R-JSHS students had less knowledge of other AEOPs than N-JSHS student. Program participation and personally conveyed information were the most impactful resources for both mentors and students to learn about other AEOPs.	Few R-JSHS students expressed that they were "not at all" interested in future programs (6%-8%). However, the majority of R-JSHS students (56%-74%) had not heard of programs other than JSHS. Some (20%-36%) R-JSHS students were interested in participating in other JSHS. Fewer N-JSHS were unfamiliar with other AEOPs (15%-56%), and many N-JSHS students (33% - 78%) expressed interest in participating in most other AEOPs. Very few mentors reported speaking with their students about AEOPs other than JSHS (60%) and UNITE (25%). Less than 10% of mentors reported discussing any other AEOP with their students, although 21% indicated they discussed AEOP with their students in general but without reference to any specific program.
	The most useful resources for R-JSHS students for AEOP information were participation in JSHS (74%); presentations or information shared at the competition (63%); and invited speakers (60%). Slightly over half of R-JSHS students reported that they had not experienced AEOP information from



	<p>their mentors (43%) or that their mentors were not a useful resource for this information (10%).</p>
	<p>Mentors reported that the most useful resources of AEOP information were JSHS participation (84%) and program administrators or site coordinators (73%).</p>
<p>JSHS participants learned about STEM careers both generally and within the DoD had positive perceptions of DoD research and researchers.</p>	<p>A large majority (84%) of R-JSHS students had learned about at least one STEM job or career during JSHS although fewer (53%) had learned about at least one STEM job or career within the DoD. Nearly all (96%) of N-JSHS students had learned about at least one STEM job or career during JSHS and all had learned about at least one STEM job or career within the DoD.</p>
	<p>R-JSHS students reported that the most impactful resources for learning about STEM careers in the Army or DoD were participation in JSHS (63%); presentations or information shared at the competition (62%); and invited speakers (57%).</p>
<p>R-JSHS students reported being more likely to engage in STEM activities outside of required school courses in the future.</p>	<p>Of the R-JSHS students who had opinions about DoD research and researchers, large majorities of R-JSHS agreed or strongly agreed that DoD researchers solve real-world problems (74%); DoD research is valuable to society (73%); advance science and engineering fields (73%); and develop new technologies.</p>
	<p>Most R-JSHS students (62%-69%) reported that after participating in JSHS they were more likely to engage in several activities including working on a STEM project or experiment in a university or professional setting, helping with a community service project related to STEM (67%); talking with friends or family about STEM, and mentoring or teaching other students about STEM.</p>
	<p>While there were no differences in likelihood of future engagement in STEM by U2 status, low SES students reported significantly lower likelihood of participating in STEM activities in the future (small effect size).</p>

<p>Most JSHS participants had educational aspirations beyond earning an undergraduate degree after participating in JSHS.</p>	<p>Almost all R-JSHS students (96%) reported that they planned to, at minimum, earn a bachelor’s degree. Most R-JSHS students (78%) indicated that they plan to earn a graduate degree. All N-JSHS students planned to earn a bachelor’s degree (96% of these in a STEM field), and most (89%) indicated they plan to earn a graduate degree.</p>
<p>Both R-JSHS and N-JSHS students reported positive impacts from their JSHS participation, although many reported that JSHS had not impacted their knowledge of other AEOPs and DoD STEM careers. There was a significant difference in impact by U2 status.</p>	<p>More than half of all R-JSHS students (51%-83%) indicated that their JSHS participation had positive impacts on their awareness of and interest in STEM opportunities; their perceptions of the impact on JSHS on their skills, confidence, and knowledge; and their knowledge of and appreciation for STEM research and careers in the DoD.</p> <p>Over a quarter of R-JSHS students reported that JSHS had not impacted their interest in participating in other AEOPs (33%), their awareness of other AEOPs (28%), and their interest in STEM careers with the DoD (35%).</p> <p>U2 R-JSHS students reported overall lower impacts than other students (small effect size).</p> <p>Most N-JSHS students reported that JSHS had positively impacted their awareness of and interest in STEM opportunities; their perceptions of the impact on JSHS on their skills, confidence, and knowledge; and their knowledge of and appreciation for STEM research and careers in the DoD.</p> <p>All N-JSHS students reported that JSHS positively impacted their awareness of other AEOPs. And over three-quarters (78%) indicated that JSHS impacted their interest in participating in other AEOPs.</p>

Responsiveness to FY17 Evaluation Recommendations

The primary purpose of the AEOP program evaluation is to serve as a vehicle to inform future programming and continuous improvement efforts with the goal of making progress toward the AEOP priorities. In previous years the timing of the delivery of the annual program evaluation reports has precluded the ability of programs to use the data as a formative assessment tool. However, beginning with the FY17 evaluation, the goal is for programs to be able to leverage the evaluation reports as a means to target specific areas for improvement and growth.

Evaluation recommendations from FY17 made to programs are highlighted along with a summary of efforts and outcomes reflected in the FY18 APR toward these areas.



AEOP Priority: Broaden, deepen, and diversify the pool of STEM talent in support of our Defense Industry Base

FY17 Finding: JSHS continued to experience a decrease in applications and participation in the program overall – which represents a three-year downward trend of 8%. For FY17 there were 8,663 applications and 5,577 students were supported to participate. In FY16 there were 8,900 applications and 5,300 participants – compared to 9,347 and 5,829 respectively in FY15. This is an area that is in need of focus again in FY18. We suggest three strategies for addressing enrollment concerns: 1) work with regions to expand their recruitment efforts beyond the local area utilizing websites, social media, and other marketing efforts of the consortium, 2) grow capacity for stronger regions to accept more participants, 3) asking FY17 alumni to recruit two new participants for the program.

JSHS FY18 Efforts and Outcomes: The AAS has encouraged JSHS regional symposia to feature a Poster Session to allow more students the opportunity to participate and present their STEM research at the symposium. Approximately 2/3 of the regions have implemented Poster Sessions as part of their symposium programming. Secondly, two regions – Wyoming and California – host virtual competitions for students to allow access despite geographic barriers. Virtual competition may be an approach to investigate to increase infrastructure for a limited investment. Lastly, approximately three regions work with their Conference Services Office and charge a university established fee for each regional symposium participant. There is a direct relationship between the number of participants served and the cost per participant not just in those regions but in other regions as well.

Factor impacting Placement Rate due to Competitive Nature of JSHS (i.e. competing for scholarships)– Regions do have to be concerned about domination of a resource rich school district and have established quotas to limit participation from any one school in many cases, but not all. Virginia provides an example through their annual report feedback. “We (James Madison University) have to limit the number of students who can apply from a school (especially the Governor’s schools which typically have 50 or more students doing research projects), but we give every student who is selected by the school a chance to speak in the competition.”

FY17 Finding: Though JSHS has steadily had participation from female students (59% in FY17), the diversity of other groups in JSHS has continued to decline. 55% of participants in FY17 were White and 24% Asian. Only 6% of participants identified as Black/African American and 7% Hispanic or Latino. Geographical representation was predominantly suburban (52%) as well, as the urban school representation declined to 3%. Recruitment and marketing strategies in FY17 should intensively focus on working with regions to expand their reach into communities with more diversity. JSHS should also work with strategic outreach partners to address recruiting challenges as well.

JSHS FY18 Efforts and Outcomes: The AAS has worked with Strategic Outreach Partners in Ohio, North Carolina, Michigan, and Montana to broaden successful participation in JSHS by U2 populations. The AAS has also identified Upward Bound Programs (Project Trio) at 29 of the 47 universities that host regional symposia.

Upward Bound students are U2 populations and successfully participated in four regional symposia in FY '18. FY '19 plans will look at expansion of the partnership with Upward Bound to increase participation in JSHS. Lastly, the AAS and NSTA have reached out to all JSHS Regional Symposia to introduce eCYBERMISSION Team Advisors and encourage participation in JSHS. We are looking forward to increased participation in JSHS FY '19 by eCYBERMISSION students and Apprentices.

FY17 Finding: Program provided/collected demographic data on participants was incomplete, as in FY15 and FY16. Our recommendation from FY16 is repeated this year. It is strongly suggested that JSHS require regional sites to collect full demographic data on all participants in FY18 and beyond.

JSHS FY18 Efforts and Outcomes: In FY18, CVENT was used by a total of 34 of 46 JSHS Regional Symposia and the National JSHS. AEOP common questions and demographic data collection were consistently accessed through those regions who implemented CVENT as their registration tool. A total 12 Regional Symposium did not use CVENT due to timing, availability of staff, or internal university procedures which prohibit adding CVENT links on host institutional networks. Concerns also arise around confidentiality, or the fact that some regions do not want to collect or share email addresses for students. Those regions which did not use CVENT were requested to incorporate into their existing practices, the AEOP common questions and demographic questions with the exact language and response choices to match those in CVENT.

AEOP Priority: *Support and empower educators with unique Army research and technology resources*

FY17 Finding: In FY17 JSHS participants continued to report dissatisfaction with judging practices and judging feedback at regional competitions – a finding that has been reported in FY14, FY15, and FY16 as well. There were several data points that reinforced this finding, from the R-JSHS survey to N-JSHS focus group sessions and the N-JSHS survey. Participants reported not being satisfied with the quality of and amount of feedback provided from judges – including receiving no written feedback from judges. Further, participants felt that the judges were not content experts and that they were judged primarily for their presentation skills rather than the actual content and focus of their research project. As has been recommended in previous years, JSHS should develop and implement guidelines for judging that include templates for providing feedback (written and oral) to participants. Further, regional sites should make every effort to have judges that reflect the breadth and depth of STEM content that participants may focus on as much as possible. STEM experts as well as Army/DoD STEM experts should be sought to engage in R-JSHS events. Virtual judging processes that may enable more qualified STEM judges to participate is a strategy that should be considered, given the concerns in this area that have been prevalent the last three years of the program.

JSHS FY18 Efforts and Outcomes: JSHS implemented a judging feedback process in FY18.

AEOP Priority: *Develop and implement a cohesive, coordinated and sustainable STEM education outreach infrastructure across the Army*



FY17 Finding: As in FY17, 59% of R-JSHS participants agreed that JSHS made them more aware of other AEOPs and 55% were interested in participating in other AEOPs. These percentages are slightly improved from FY16 (50% and 46% respectively). However, most mentors did not discuss AEOPs with participants and the percentages decreased in FY17 – as only 21% discussed Unite (compared to 23% in FY16), 14% SMART (compared to 7% in FY16), 12% eCYBERMISSION (compared to 8% in FY16), 11% SEAP (compared to 9% in FY16), 10% URAP (compared 4% in FY16), 10% REAP (compared to 8% in FY16), 9% HSAP (compared to 6% in FY16), 5% CQL (compared to 2% in FY16), and 6% NDSEG Fellowship (compared to 3% in FY16). These findings are concerning, primarily because these are areas that AAS could address through collective and organized marketing efforts for JSHS. Widmeyer developed slide decks and other materials should be better utilized by programs to expose participants to other important components of the AEOP pipeline. Promotion of the AEOPs should be collective responsibility of each and every program within the consortium.

JSHS FY18 Efforts and Outcomes: JSHS distributed AEOP brochures to regions in FY18.

FY17 Finding: The majority of participants in R-JSHS (85%) in FY17 (similar to FY16 78%) reported learning about STEM careers during JSHS. There was also growth in the percentage of participants that learned about at least one Army/DoD STEM career in FY17 (51% compared to 40% FY16). Conversely, a large majority of N-JSHS (80%) students indicated that invited speakers or career events were a key resource for learning about DoD STEM careers. The difference in growth of learning about STEM careers overall and DoD STEM careers specifically may be attributed to mentor level of discussion of each during the program. Mentors (78%) reported discussing STEM careers with participants. However, only 35% discussed Army/DoD STEM careers. Mentors (78%) reported discussing STEM careers with participants. However, only 35% discussed Army/DoD STEM careers. In FY17 JSHS should address this area through development of a toolkit for regional sites to use (i.e. slideshow, handouts, social media posts) and also an inventory of potential regional Army/DoD STEM career people who could be engaged to participate in person or by video in the programming.

JSHS FY18 Efforts and Outcomes: JSHS provided some targeted support to selected regions to try and engage DoD researchers in regional programs.

Recommendations for FY19 Program Improvement/Growth

Evaluation findings indicate that JSHS experienced success as in previous years. Notable successes for the year include continual impacts on STEM skills, STEM knowledge, STEM identity, and 21st Century Skills. While these successes are commendable, there are some areas that remain with potential for growth and/or improvement. The evaluation team therefore offers the following recommendations for FY19 and beyond:



AEOP Priority: Broaden, deepen, and diversify the pool of STEM talent in support of our Defense Industry Base

1. As in the previous three years, JSBS participation continued to decrease in FY18. There were 4,600 participants in FY18, compared to 5,577 in FY17, representing a 22% decrease. Since FY 15, the enrollment has dropped over 50%, from 9,347 to 4,600. As in FY17, we recommend that for FY19 the new IPA (National Science Teachers Association) take a serious approach to reversing this trend. As in FY17, we suggest three strategies for addressing enrollment concerns: 1) work with regions to expand their recruitment efforts beyond the local area utilizing websites, social media, and other marketing efforts of the consortium, 2) grow capacity for stronger regions to accept more participants, 3) asking FY18 alumni to recruit new participants for the program.
2. In FY18, JSBS did not secure 100% participation in the use of Cvent for registration for regions. Only 34 of the 46 regions were fully integrated. As a result, the program failed to collect important demographic data on all participants. For the purposes of this evaluation, we calculated the percentage of underserved students using only data from Cvent (n = 2,955). The overall U2 percentage for JSBS in FY18 was 37%. There are two recommendations in regard to this area of concern. First, all JSBS sites should be required to use Cvent for registration in FY19. Second, JSBS should work to engage and grow the percentage of underserved students by at least 5% for FY19 and also develop a plan to continue to grow this percentage over the next five years.

AEOP Priority: Support and empower educators with unique Army research and technology resources

1. JSBS mentors reported only 53% to 87% usage of the effective mentoring strategies. This reveals that mentors are either choosing not to implement best-practice or are not equipped with the appropriate training to utilize the strategies with their participants. It is recommended that JSBS develop and implement a required training for mentors (delivered virtually) that is completed at least once when beginning to work with the program in FY19 and beyond.
2. As in previous years, JSBS participants and mentors indicated the need for securing judges from more diverse backgrounds who were also representative of STEM content area specialties. It is recommended that JSBS continue to have formal efforts to address the lack of diverse populations and STEM content expertise in their judging volunteers.

AEOP Priority: Develop and implement a cohesive, coordinated, and sustainable STEM education outreach infrastructure across the Army

In FY18, JSBS participants reported (56% to 74% depending on program) not having any knowledge of the other AEOP programs. Few mentors reported speaking with their students about AEOPs other than JSBS (60%) and UNITE (25%). Less than 10% of mentors reported discussing any other AEOP with



their students, although 21% indicated they discussed AEOP with their students in general but without reference to any specific program.

This finding has been prevalent across evaluations from FY15 to present without improvement despite some efforts to encourage regional sites to promote AEOPs. Due to the significance and importance of making participants aware of the other AEOPs and resources in the pipeline, we strongly encourage NSTA to take this finding very seriously and develop and implement a formal strategy to address this in FY19 and beyond.

To view the rest of the report:

[JSHS Evaluation Report Narrative Part 2](#)

[JSHS Evaluation Report Appendices Part 3](#)