

STEM NETWORK SCHOOLS

Summative Evaluation Final Report Executive Summary

This final evaluation report summarizes the data collection results obtained by ICF for the Science, Technology, Engineering, and Mathematics (STEM) Network Schools Initiative over the course of the three-year grant cycle (2015-16 school year to 2017-18 school year). The evaluation took place in eight West Virginia middle and high schools that participated in the three-year project, which was administered by The Education Alliance. For details regarding the statistical significance referenced in these findings please review the final report.

Results - The following summary highlights progress data in three evaluation measures:

EQ1. To what extent are STEM Network Schools provided with appropriate and high-quality professional development (PD) that results in improved instructional practice?

- **Educator participation in STEM PD:** Participation in job-embedded PD increased by seven percentage points from Year 1 to Year 3. Overall, Year 3 educators reported participating in PD more often than in Year 1, with a four-percentage-point decrease in the number of respondents who indicated that they never participated in STEM PD (18% in Year 1 to 14% in Year 3).
- **Quality of STEM PD:** A significant increase in the mean rating from Year 1 to Year 3. Participants responded most favorably when asked if the STEM-related PD/support they received was effective in building their STEM learning content knowledge and if it was relevant to their work.
- **Outcomes of STEM PD:** There was a significant change from Year 1 to Year 3 with respondents who indicated their average level of agreement with the item “helped me establish a connection to a network of my peers around STEM learning”. Notably, even though it was the least commonly chosen activity in Year 3, the inclusion of local STEM-based community members in lessons/activities showed a 32-percentage-point increase (from 20% in Year 1 to 56% in Year 3).

EQ2. To what extent does the STEM Network Schools Initiative result in increased student engagement and STEM confidence among participating students?

- **Engagement:** From Year 1 to Year 3, evaluators observed a sharp increase in self-reported student engagement in all eight STEM-based learning activities, with significant changes across all eight survey items. The largest increases were in the percentage of students in STEM Network Schools who reported they:
 - “participated in an organization or club to promote STEM learning” (from 26% in Year 1 to 54% in Year 3);
 - “engaged in STEM extracurricular activities” (from 28% in Year 1 to 55% in Year 3);
 - “participated in a STEM problem or project that includes multiple subjects” (from 49% in Year 1 to 68% in Year 3); and
 - “participated in STEM-related competitions” (from 27% in Year 1 to 57% in Year 3).
- **Confidence:** Student confidence did not change from Year 1 to Year 3. Importantly, confidence in STEM did not significantly fall despite increased exposure to the STEM Network Schools Initiative (i.e., as students learned more about STEM, their confidence remained consistent). As such, evaluators cannot conclude that the initiative led to increased student STEM confidence.

EQ3. To what extent do STEM Network Schools build and maintain meaningful partnerships with community members to enhance STEM education?

- **Duration:** Given the final stages of the project, it is not surprising that almost a third of 17 respondents (29%) have worked with their partner school(s) for three years or longer, and almost half (47%) for more than one year but less than three. Nearly all (95%) responded affirmatively when asked if they wished to continue their partnership.
- **Activities:** Among the six STEM activities (field experience, internships, site visits, special events, service-learning, other), a 19-percentage-point increase was seen in site visits from Year 1 to Year 3.
- **Quality:** In Year 3, respondents gave the highest rating when asked if they felt that “...my organization provided high-quality support to our partner school(s)”. The lowest ratings were observed when partners were asked if their “partnership provided ample opportunities to interact with students and staff around STEM learning”, as well as if “there was adequate time to share information about STEM learning” (3.8) which was also a similar finding to Year 1.
- **Suggestions:** When asked about their best experience while partnering with the STEM Network Schools, a majority of community partners appreciated the opportunity to work with students and educators, and watching students engage with STEM technology projects, similar themes as in Years 1 and 2.