



Executive Summary

**of 2015-2016 Evaluation Findings
Regarding Techbridge Broad Implementation
from Greater Seattle and Washington, DC**

PREPARED FOR

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Background

Techbridge's mission is to help girls discover a passion for science, engineering, and technology (SET). In August 2013, Techbridge was awarded a five-year National Science Foundation grant to scale up its after-school program from the San Francisco Bay Area to multiple new locations around the United States. Techbridge began offering after-school programming at elementary and middle schools in Greater Seattle in 2014, and in Washington, DC in 2015.

Education Development Center is conducting the formative and summative evaluation of the project. To assess the implementation and impact of the expansion effort in 2015-16, qualitative and quantitative data were collected from a variety of stakeholders, including girls who participated in the new programs and non-participating comparison students from the same schools; the parents or guardians of Techbridge students; role models who visited the programs and/or hosted Techbridge field trips at their companies; Techbridge teachers and principals; district representatives; and Techbridge staff. The evaluation team also conducted observations of selected programs.

Techbridge had a positive influence on girls' knowledge of, and interest in science, engineering and technology.

- ✓ **The Techbridge expansion sites successfully enrolled girls from underrepresented groups** (low-income, racially diverse, and first generation).
- ✓ **Girls gave the Greater Seattle and Washington, DC Techbridge programs high marks:** 96% gave Techbridge an "A" or "B." Girls valued the hands-on projects, the ability to learn with their peers, and the opportunities to meet SET role models and visit SET workplaces.
- ✓ **Techbridge's hands-on activities gave girls opportunities to become more confident in themselves and their abilities in SET.** Several students said that the program was empowering to them as girls.
- ✓ **Techbridge helped girls understand various career options in SET and the pathways toward these careers.** Techbridge girls showed greater gains in their knowledge of SET careers than comparison girls.
- ✓ **The program appeared to have an especially strong influence on girls' understanding of practices and process commonly used in SET,** such as the engineering design process. At the end of the year, Techbridge girls were significantly more likely than comparison students to report they understood and used SET practices ($p < .01$).
- ✓ **Techbridge appeared to have a positive impact on girls' interest in studying engineering or technology in college.** Following participation in Techbridge, 84% of participants said they planned to study engineering (vs. 75% before Techbridge) and 86% of participants said they planned to study computer science (vs. 77% before Techbridge). In contrast, comparison students' reported intentions to study engineering or computer science declined over the course of the year.

- ✓ **After participating in Techbridge, girls were more likely to say that someone like them could work in engineering or technology.** Many girls said they felt a sense of belonging in Techbridge, and that Techbridge facilitators played a large role in developing these positive relationships.
- ✓ **Girls were more likely to say they were considering a career in SET after participating in Techbridge**—70% of Techbridge girls who did not identify SET among their top three career choices on the pre-survey listed at least one SET career on the post-survey. (In contrast, only 19% of comparison girls who did not list a SET career on the pre-survey listed one on the post-survey.) The total percentage of Techbridge girls who listed at least one SET-related career among their top three choices climbed from 53% in the fall to 73% in the spring while the percentage of comparison students who did so declined slightly. The field trips and role model visits piqued many girls' interest in SET careers, exposing them to careers they did not know existed and helping them envision themselves doing that work.
- ✓ **Techbridge helped girls become better problem-solvers and to persevere in the face of obstacles.** Techbridge participants were more likely than comparison students to ascribe to statements suggesting they have a growth mindset, such as understanding that intelligence is malleable. Techbridge's emphasis on the engineering design cycle provides opportunities for girls to problem-solve, struggle, and not give up.
 - 🔍 **Recruitment and retention at middle school programs continues to be a challenge** due to competing priorities for girls' time and attention.
 - 🔍 While **some Techbridge girls reported having more confidence in public speaking situations**, others did not make gains in their public speaking skills or confidence. Public speaking is an area of growth for Techbridge participants.

Techbridge teachers and school administrators were very satisfied with the program.

- ✓ **Teachers rated the training and support they received from Techbridge highly**, especially the initial training during the summer before the program began, and the debrief meetings with their Techbridge Program Coordinator.
- ✓ **Techbridge teachers were impacted by their involvement in the program**, especially in their interest in engaging girls in SET and their knowledge of strategies to engage girls in SET.
- ✓ **Principals from both expansion sites also praised the benefits of Techbridge in their school.** The district in Greater Seattle continues to play an active role in supporting and shaping Techbridge and considers the program a strong partner.

Role models visits and field trips were highlights of the program.

- ✓ **Role models were well-prepared for their interactions with Techbridge participants:** 91% agreed they were more confident in conducting outreach due to Techbridge. All but one role model agreed that serving as a Techbridge role model was worthwhile.

- ✓ **Teachers rated role model visits and especially the field trips highly**, naming benefits to students such as exposure and inspiration regarding SET career opportunities.

Parents praised the program.

- ✓ **At least nine out of ten parents agreed that, because of Techbridge, they were more aware of SET activities** their daughter can participate in, they have encouraged their daughter to participate in more SET activities, and that Techbridge helped them learn about family activities related to SET. According to girls, the majority of their parents already supported their interests in SET prior to their involvement in Techbridge, but the levels of support still increased after Techbridge (especially in their encouragement of SET careers).

🔍 **There are challenges to involving families in Techbridge**, including language barriers and scheduling difficulties. Techbridge resources are reaching about three-quarters of all families. Family Nights are mentioned as a good strategy to engage parents, and PCs have experimented with using other media to help keep parents updated (such as text messaging and blogs featuring photos of the girls doing program activities).

The Techbridge expansion sites implemented the Techbridge program model with a high level of fidelity.

- ✓ Along with using the hands-on activities from the Techbridge curriculum, **the expansion programs also used strategies that are part of the Techbridge model**, including consistently emphasizing the engineering design process, fostering positive relationships, and promoting a growth mindset.

🔍 **Programs showed room for growth** in the degree to which they made connections between the activities and students' lives, and in discussing gender inequities in SET (and how to address them).

🔍 **The Techbridge curriculum was designed to be implemented in two-hour sessions, while both expansion sites only have 90-minute programs.** Techbridge staff and teachers reported that it was sometimes challenging to keep fidelity to the Techbridge model and to address all of Techbridge's hoped-for outcomes for girls.

After a year of growth and internal transitions in leadership, Techbridge is at an important juncture.

🔍 Techbridge experienced multiple staffing changes during 2015-2016 which both gave rise to new opportunities, and also put greater strains on remaining staff and systems.

🔍 Based on the evaluation findings from Year 3, Techbridge may wish to (1) ensure the expansion sites have sufficient staffing and support; (2) continue to facilitate strong cross-site communication and collaboration; and (3) make extra efforts to ensure that staff from expansion sites feel sufficiently connected to senior leadership.

In summary, Techbridge has successfully expanded to two locations outside of the San Francisco Bay Area and is poised to continue scaling-up.