

EXECUTIVE SUMMARY

Approaches to Evaluating Faculty Outreach, Part IV: Demonstration Project—Girls at the Museum Exploring Science, GAMES

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At the request of the University of Colorado Boulder Office of University Outreach (OUO), we carried out a study of the evaluation needs, opportunities, and interests of faculty who had been awarded Faculty Outreach awards by the OUO. As part of this study, we conducted three “demonstration projects” to generate practical examples of how outreach might be evaluated and what might be learned, and to bring evaluation-related challenges and possibilities to the fore.

As one demo project, we studied Girls At the Museum Exploring Science (GAMES), an afterschool program that seeks to encourage interest in science among preadolescent girls. Fourth- and fifth-grade girls come to the CU Museum of Natural History to explore science through hands-on activities using real museum specimens and direct interaction with scientists and museum professionals. To examine short-term outcomes, we analyzed data from post-surveys completed in past years by 93 girls at the end of their 7-week program. To examine longer-term outcomes, we conducted a retrospective study. Data came from 30 survey respondents and 8 focus group participants who had participated in GAMES 3-7 years earlier, and from five teachers who had chaperoned girls from their school to attend the program.

Analysis of the data revealed multiple lines of evidence addressing three key outcomes: confidence in their ability to participate in and contribute to scientific work; positive attitude toward science; and pursuit of science as an academic, personal, or career interest.

Evidence about confidence came from the retrospective studies. Over 70% of follow-up survey respondents felt they were good at science. Five of eight focus group participants were high in confidence, and two moderate. Thus girls’ confidence in their science abilities remained high.

Evidence about attitudes came from both immediate and retrospective data. After the program, 84% of respondents liked science more than before the program. In retrospect, clear majorities of girls continued to report liking science more or the same. Few reported declines in attitude.

Evidence about academic and career aspirations was mixed. Girls did not report high participation in out-of-school science programs but many did cite science as a favorite school subject. They had high educational aspirations for college and beyond. From each of the three immediate and retrospective data sources, half or more indicated interest in science careers.

Teachers’ observations largely corroborated girls’ self-report. Teachers had noticed growth in confidence, interest, and pursuit of science, such as GAMES-related science fair projects. They also felt it was important for girls to be exposed to higher education and to female role models.

Without a comparison group, we cannot show that these outcomes are caused (or not) by GAMES, but in focus groups, girls were able to link their current perceptions to their GAMES participation. Girls’ strong memories of GAMES make clear that they can remember and assign value to their participation, and they highlight program elements that align with research-based best practices for out-of-school science programming.

Overall, the findings are strengthened by the use of multiple methods, but they are limited in generalizability by small sample sizes. The findings reveal some good outcomes that do appear to result from girls’ participation in GAMES, but not how widespread these outcomes are.