

About the Project

Researching the Value of Educator Actions for Learning (REVEAL) was a three-year, National Science Foundation (NSF)-funded research study carried out by the Oregon Museum of Science and Industry (OMSI) between 2013 and 2017. In collaboration with TERC and Oregon State University, the team explored the role of museum educators in deepening and extending family engagement and learning at interactive math exhibits. REVEAL built on the NSF-funded Access Algebra project, which created a large traveling exhibit, Design Zone, that capitalizes on visitors' interest in design, engineering, art, and music to create engaging and memorable learning experiences with math.



REVEAL had three primary goals:

1. Iteratively develop and refine a theoretical model of how staff facilitation can deepen and extend family engagement and learning at interactive math exhibits;
2. Rigorously test key components of this model, including the relationship between staff facilitation and the nature of family engagement and learning; and
3. Develop and share evidence and research-based tools to support professional development efforts for informal STEM educators.

The REVEAL study consisted of two stages: (1) a design-based research (DBR) study with two expert educators and (2) an experimental study comparing facilitated and unfacilitated family interactions at exhibits. During the DBR stage, a cross-disciplinary team of educators and researchers collected and analyzed data from hundreds of staff-family interactions over the course of six months. These efforts produced a model of staff-facilitated family learning at exhibits, including facilitation strategies for supporting mathematical reasoning and adapting to the needs and interests of different family groups.

During the second stage, the team trained four new educators and conducted a quasi-experimental study to test the REVEAL facilitation model and assess the impact of staff facilitation on family learning across five distinct outcome variables: engagement time, intergenerational communication, visitor satisfaction, mathematical reasoning, and math awareness. In total, 263 family groups at OMSI participated in the study under two conditions. In one, educators provided full facilitation based on the REVEAL training they had received, while in the other educators simply greeted families as they approached and allowed them to engage with the exhibits on their own. The REVEAL facilitation model and training tools were also tested at ScienceWorks, a small science center in Southern Oregon, in order to understand how the approach might transfer to other organizational contexts.

Explore this website to learn more about the REVEAL project, including the project team, our culturally responsive research approach, video-based professional development tools for museum educators, the mathematical content focus, and additional publications and resources.



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