Evaluation of a K-2 early science digital transmedia program: Synthesized learnings on implementing with fidelity

Linlin Li, Eunice Chow, Sara Atienza, *WestEd*
Momoko Hayakawa, Joan Freese, *Twin Cities Public Television*
Contact Information: Eunice Chow, echow@wested.org

Introduction and Purpose

- The **goal** of the *Hero Elementary* Program is to promote **early science learning** and **school readiness,** with a particular focus in reaching children from low-income communities through trans-media.
- The program embeds **Next Generation Science Standards (NGSS)** into a series of hands-on activities and browser-based digital activities, including TV episodes, digital games, non-fiction e-books, and a digital science notebook.
- WestEd conducted the evaluation of the program over **six different studies**.
- We identify **implementation challenges and barriers**, and propose **mitigation strategies,** to facilitate high fidelity of implementation.
- Understanding participant needs for effective implementation, as well as mitigation strategies, holds implications for improving standards around fidelity of implementation, forwarding our understanding of high-quality evaluation practice overall.

Methods

- Science learning assessments
- Classroom observations
- Educator interviews
- Weekly educator logs
- Regular communications with educators
- Student focus groups
- Student telemetry data
- Educator and parent surveys

Evaluation Logic Model

Note: Long-term outcomes are outside of the scope of this study
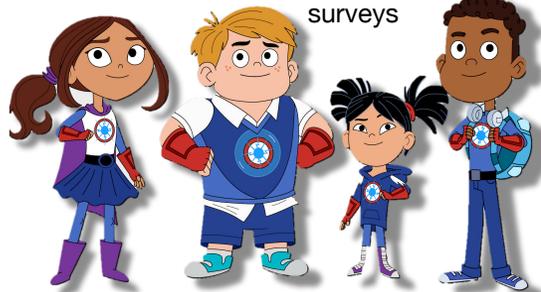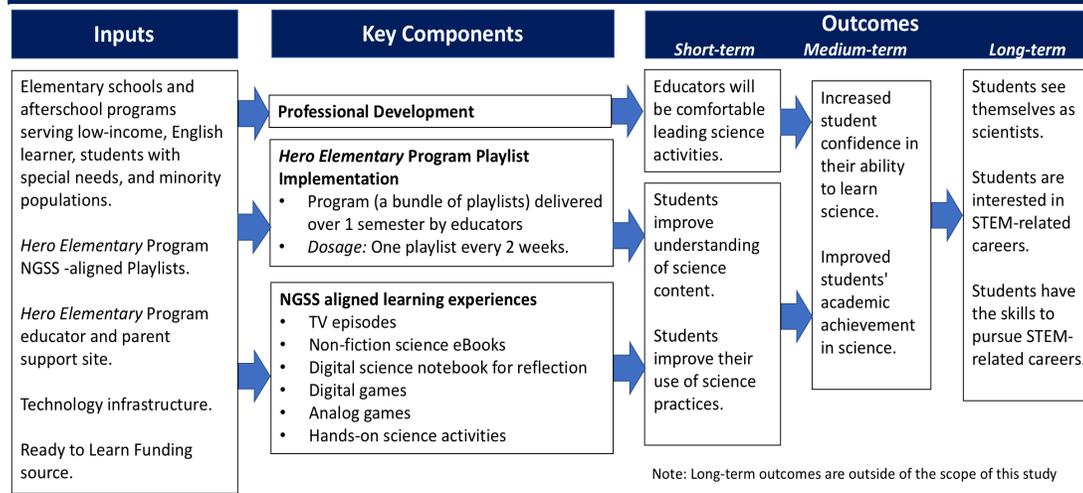
Program and Studies

To understand the feasibility of implementing playlists in formal and informal contexts and to investigate how the playlists authentically support student learning, researchers conducted six total studies across regular schools, after-school programs, and summer programs.

Studies we conducted included:

Studies	# of Playlists	Context	Time	N=
Usability	1	In-school	Summer 2018	34
Feasibility	4	Afterschool	Fall 2018	81
QED	5	Afterschool	Spring 2019	173
QED	4	Summer school	Summer 2019	285
Feasibility	6	In-school	Fall 2019	88
RCT	4	In-school (Distance learning)	Spring 2020	793

	Implementation Challenges	Mitigation Strategies
Educator Readiness	• Classroom management • Content challenges • Teacher readiness	• **Development of supporting materials** suggesting modifications of the content to meet the needs of different age groups
Institutional & School Support	• Varying levels of administrator support, classroom staff support, and school resources	• **Systematic training, professional development, and webinars** with a focus on understanding the playlist content and best practices for implementing each type of activity
Technical Issues	• Using the browser-based platform • Unfamiliarity with tablets and technology in general	• **Streamlining technology logistic processes in classroom,** such as designating student volunteers to help others, using QR codes for logins, etc. • Provide early playlist access for educators to familiarize themselves with the technology.