

2021

## **Data Management Plan for Investigating Early Mathematics Learning Opportunities for Children with Disabilities in the Home Learning Environment**

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## DATA MANAGEMENT PLAN

### ROLES AND RESPONSIBILITIES

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Dr. Nelson (PI) will be responsible for the initial setup and organizational structure of the research materials. Once established, the PI will have access to and primary responsibility for maintaining, securing, and preserving data files, including securing and preserving the data, and final reports. Additionally, the PI will be responsible for maintaining appropriate protocols to ensure confidentiality of human subjects and other sensitive information related to the study and will work with the Office of Research Compliance to ensure that survey and data gathering tools and management of the resulting data meets Institutional Review Board standards.

Project personnel consists of a research team comprised of the PI, a graduate student, and a post-doctoral researcher; a project advisory board; and a methodological expert from the Boise State University (Dr. Boedeker) and a methodological consultant, Dr. Drew Bailey (University of California-Irvine).

### TYPES OF DATA OR PRODUCTS

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Several types of data will be gathered, produced, and analyzed during this grant period:

- Child mathematics screening data used to identify risk for learning disabilities and mathematics difficulties, and to measure child mathematics achievement longitudinally throughout the duration of the grant.
- Survey data, including a home numeracy environment scale, a parent mathematics belief scale, and demographic data about both parents and children.
- Survey data collected from children to assess enjoyment of engaging in mathematics activities.

### DATA STORAGE, PRESERVATION, AND SHARING

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Information collected during the grant project will be de-identified and linked using unique identifiers in order to make longitudinal assessment possible. The PI, authorized project personnel, and the methodologists will have access to these files. The PI will work with the Office of Research Computing to ensure that data sharing (such as with the consultant Dr. Bailey) complies with assurances and regulations set forth to ensure confidentiality and authorized access to research data. Members of the advisory board will be provided reports highlighting project progress and distilled, de-identified data. Throughout the project, files will be stored and shared in a Boise State University instance of Google Drive, which is a licensed, private instance of Google Drive maintained by the Office of Information Technology which provides unlimited, FERPA-secure, cloud-based storage with managed back-ups.

A white paper documenting study procedures and protocols will be maintained throughout the life of the project and will include, at a minimum: description of the data, structure of the data files, and information on confidentiality, access policies, or other conditions of use, data collection methods used, and other metadata necessary to support reproducibility. Where appropriate, additional codebooks and variable-level metadata will be created and stored with the related files. Files will be organized according to data type and files will be named with a date (e.g., 2021-05-24) and name that describes the unique content of the file (e.g., child fall mathematics achievement data).

Findings will be shared in peer-reviewed journals, at conferences, other professional venues, and on the project website. At the conclusion of the project, de-identified survey data, training materials, and reports will be published via ScholarWorks, Boise State's Institutional Repository. Managed by Albertsons Library, ScholarWorks utilizes a hosted platform, optimized for open discovery. Additionally, descriptive metadata records and permanent DOIs will be created for each data set to ensure proper citation and

permanent retrieval of the materials. In addition, the PI will work with ICPSR (or another appropriate repository) to have datasets produced during the project curated and made available to qualified researchers.

#### DATA FORMATS

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- Child mathematics screening data will be provided by school districts in tabular format and stored as .csv files.
- Parent survey data will be collected using Qualtrics and exported to .csv files.
- Survey responses will be collected from children in either paper format or in an interview format and entered into Qualtrics for analysis, then stored as .csv files.

#### DATA RESTRICTIONS

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Child mathematics screening data obtained from school districts, and will not be shared in its raw, unprocessed form beyond the research team. In addition, data with personal identifiers will be restricted to project personnel. Third-party survey instruments used during the project will require appropriate attribution.

In order to ensure that materials developed for parents to maintain are used appropriately, they will be shared on the project website with a Creative Commons Attribution-NonCommercial 4.0 International license.

#### PERIOD OF DATA RETENTION

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Raw data including child mathematics screening data, survey responses from parents and children, and focus group recordings/transcripts will be maintained on the Boise State Google Drive for at least three years from the completion of the project. Paper surveys will be maintained in a locked file cabinet in the PIs office for five years after the completion of the project and then destroyed.