

Data Management Plan Project Title

1. Types of data, samples, physical collections, software, and other materials to be produced The project team will develop a repository of curricular materials that will be accessible by outside audiences, as well as surveys, interview and focus group recordings and transcriptions, observation notes and video recordings, and artifacts of student work collected for research and evaluation purposes.

2. Standards to be used for data and metadata format and content

(1) **Audio and video data** will be collected on digital audio and video recorders for review and storage. Qualitative data will be transcribed from digital video and audio files into word processing formats. (2) **All written artifacts** will be scanned and converted to PDF format for review and storage. These files can be viewed by any of the commonly available PDF viewer programs. (4) **Researcher and Evaluator data analysis** will employ Excel, Dedoose, Stata, R, and SPSS software. (5) **Metadata** will be created to organize all collected data. Data file names will be appended with the date of collection. Data files will also be appended with pseudonyms that identify the participant, the location of data collection, and the researcher who collected the data. Metadata will be organized in a relational database using Filemaker created specifically for all data related to this project.

3. Policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements Data collected on this project includes student and teacher surveys, artifacts, interview recordings, video classroom recordings and meeting notes, observation and field notes, and focus group and interview data. All physical research data will be stored in locked project offices at [REDACTED]. Digital research data will be stored on secure cloud storage (e.g., Box) at [REDACTED] and [REDACTED]. Evaluation data will be stored using OneDrive secure Cloud storage. Sharing data across project sites will be secured through the use of the secured cloud storage and VPN of the home institutions. All stored data will be de-identified and labeled with a pseudonym to protect the confidentiality of participants. The pseudonym identifiers will be maintained in a file separate from the collected data, and the list will be destroyed 5 years after the conclusion of the project. Identifying information will be erased or masked on recordings before sharing outside of the project team. Following appropriate IRB procedures governing the project, all adult participants and the parent/ guardian of minor children will sign informed consent prior to participation, and children will give assent as appropriate. During the consent process, participants will have the opportunity to restrict the use of their data to the project research and evaluation team or approve sharing of their data with other researchers or with research audiences in professional and educational settings (e.g., graduate courses in science education or education research conferences). During the consent process, participants may elect to share their voice/ image or restrict to sharing written artifacts only. We are willing to share data with qualified researchers (e.g., researchers with a Ph.D. in education, computer science, or related fields) within the limits of our Institutional Review Board (IRB) rules and policies and the capacity of the collective partners to respond to such requests. We will also share data with the NSF upon request. Individuals requesting data must submit a written request describing their qualifications to view the data and the intended use of the data. We will respond to requests for data based on the availability of our staff and the amount of time required to provide de-identified data of the type requested.

Requestors must sign an agreement stating they will not use the data for any other purposes or share the data with unauthorized personnel. Researchers will be allowed access to data through the following process: (1) data files to be shared will be placed in a secure [REDACTED] online file repository, (2) [REDACTED] personnel will provide approved researchers a secure identifier and password to access the file repository, and (3) approved researchers will have access to the file repository for up to one year from the date of approved access. [REDACTED] will allow access and sharing to data in a manner that conforms to NSF policy and provides for appropriate protection of privacy, confidentiality and intellectual property.

4. Policies and provisions for re-use, re-distribution, and the production of derivatives At the conclusion of the project, the data will be made available for reuse by qualified researchers upon request according to the criteria described above. Only data collected from participants who consent to such sharing of their data will be made available for this purpose.

5. Plans for archiving data, samples, and other research products, and for preserving access All data on the project will be archived on local password-protected hard disks at both [REDACTED] and V[REDACTED] for long-term storage and reuse, and any paper materials will also be stored in locked project offices. Hard disks will be maintained in secured cabinets in locked offices at [REDACTED], [REDACTED] and [REDACTED]. Non-confidential data & findings will be made available to the public upon request to the PIs, and through an open data repository site such as figshare.com, free of charge. The availability of the de identified and analyzed data on an open platform will be referenced in project presentations and publications. Project instruments and tools used for data collection will be released through Project websites and disseminated through the CADRE and/or STELAR websites.