

Plan Overview

A Data Management Plan created using DMPTool

Title: Collaborative Research: GP-IMPACT: I See Me! Skill-Job-Course Connection Vignettes to Increase Student Interest in Geoscience Careers

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Collaborative Research: GP-IMPACT: I See Me! Skill-Job-Course Connection Vignettes to Increase Student Interest in Geoscience Careers

Types of data

Preservation of all data, samples, physical collections and other supporting materials needed for long-term earth science research and education is required of all EAR-supported researchers.

NSF 15-526 Collaborative Research: GP-IMPACT: I See Me! Skill-Job-Course Connection Vignettes to Increase Student Interest in Geoscience Careers

This proposed work is to create 31-47 short, 2-3 minute videos that link introductory-level geoscience course content to real geoscience careers and the diverse people working in them. We will study classes that are both using and not using these videos, fielding pre-post course surveys about knowledge and interest in geoscience careers, where they obtain career information, self-efficacy about ability to succeed as a scientist, stereotypes of scientists, typical grades in STEM classes, employability of geoscientists, earning potential, societal relevance of geoscience, personality fit, the importance of flexibility in a career, and stature of geoscientists. Focus groups of a sample of students from these classes will help us further probe and understand student interest in geosciences in ways surveys cannot elicit well. We will also conduct interviews with faculty teaching the study courses to understand their teaching philosophy, what career information tools they may be using, and how they keep up with changes in the landscape of geoscience careers available to their students.

Types of Data

This project will result in (1) a video and storyboard template for creating these videos (iMovie template, Word document storyboard); (2) videos of geoscience professionals (UNAVCO video production team believes late-model iPhones provide sufficient quality); (3) pre-post student surveys (identifiable data in Qualtrics and exported Excel files that will have identifiers removed); (4) focus group discussion audio and/or video (audio in .m4a); and (5) faculty interview audio (.m4a).

Data will be captured as follows. Video interviews with geoscience professionals will be captured with late-model iPhones held in small tripods. Supplementary audio may be captured with small audio recorders. Pre-post survey data will be collected with Qualtrics, the market leader among data collection and survey research platforms. Focus groups and faculty interviews will be at least audio recorded; there may be more than one recorder for focus groups to assure all voices are audible in recordings.

Other data used in the project would be career information data for the video storyboards. These would come mainly from a variety of publically available sources.

Data will be processed with iMovie, Excel, R, and python.

Quality of data will be done in part through validity testing of our tools with OU courses early in the project. We will restrict pre-post survey responses to valid email addresses provided by faculty; each student will be provided a unique URL to access the survey (this also allows reminders only to those who have not completed the survey). Two experienced researchers will conduct the focus group sessions and faculty interviews.

Data and metadata standards

Data archives must include easily accessible information about data holdings, including quality assessments, supporting ancillary information, and guidance and aids for locating and obtaining data.

Our career videos will be given metadata tags describing course content, geoscience field, job sector, job skills to allow them to be easily searchable.

Our pre-post survey data will be stripped down to citable constructs in career interest literature, and could include constructs that result from this study, to allow social reseachers to use de-identified survey data. Our pre-post survey instrument will be shared upon request.

Focus group and faculty interviews will be retained in audio and/or format, so will not be de-identifiable and cannot be shared. Notes derived from these interviews will not contain identifiers and will be shared if requested. Our focus group and faculty interview guides will be shared upon request.

Policies for access and sharing

It is the responsibility of researchers and organizations to make results, data, derived data products, and collections available to the research community in a timely manner and at a reasonable cost. In the interest of full and open access, data should be provided at the lowest possible cost to researchers and educators. This cost should, as a first principle, be no more than the marginal cost of filling a specific user request. Data may be made available for secondary use through submission to a national data center, publication in a widely available scientific journal, book or website, through the institutional archives that are standard for a particular discipline (e.g. IRIS for seismological data, UNAVCO for GP

data), or through other EAR-specified repositories. Data inventories should be published or entered into a public database periodically and when there is a significant change in type, location or frequency of such observations. Principal Investigators working in coordinated programs may establish (in consultation with other funding agencies and NSF) more stringent data submission procedures.

Videos produce through this grant will be available through UNIDATA, YouTube, TeacherTube, and UNIDATA's RAMADA server. UNIDATA will make the video template and storyboard available on a cloud computing system like Google Drive or Dropbox. Pre-post survey data, as described in the previous section, will be made available through OU's SHAREOK Repository site.

We anticipate that other researchers in career interest and decision making, within and beyond geosciences, may be interested in this data. We will produce at least a conference presentation by which other researchers may cite our data.

Policies and provisions for re-use, re-distribution

For those programs in which selected principle investigators have initial periods of exclusive data use, data should be made openly available as soon as possible, but no later than two (2) years after the data were collected. This period may be extended under exceptional circumstances, but only by agreement between the Principal Investigator and the National Science Foundation. For continuing observations or for long-term (multi-year) projects, data are to be made public annually.

Our data will be collected through Year 3 of the proposed project, and has the greatest utility when considered in whole. Therefore we will make our data available during or soon after Year 3, as we analyze and write up our findings. No restrictions will be placed on the data; it will be made available with a creative-commons open-license. Only de-identified data can be shared, and those data shared will be linked with metadata to constructs in career interest/decision literature. Intended/foreseeable users are those in and beyond geosciences that research career interest and decisions of undergraduate students.

Plans for archiving and preservation of access

Remember - Data may be made available for secondary use through submission to a national data center, publication in a widely available scientific journal, book or website, through the institutional archives that are standard for a particular discipline (e.g. IRIS for seismological data, UNAVCO for GP data), or through other EAR-specified repositories.

The long-term strategy for maintaining, curating, and archiving data are partly subject to YouTube, TeacherTube, and UNIDATA policies, which are at this time indefinite. We are also planning to use cloud storage such as Google Drive or Dropbox. OU's OKSHARE data policy is to retain data even if researchers leave the institution. Metadata will accompany data, as will citations by which to credit the original researchers.
