7-5-2017

Collaborative Research: Scaffolding Pre-service, Early Childhood Teachers to Debug Block-based Programming

Brian R. Belland
Utah State University, brian.belland@usu.edu

Follow this and additional works at: https://digitalcommons.usu.edu/funded_research_data

 Part of the Education Commons

Recommended Citation

Belland, B. R. (2017). Collaborative Research: Scaffolding Pre-service, Early Childhood Teachers to Debug Block-based Programming. Utah State University. https://doi.org/10.15142/T32K97

Data Management Plan

Description of Data and Other Materials Expected to be Produced
Information appearing in the table below refers to planned data, associated metadata, and their digital forms. Final authority for data types and storage of data lies with the University of Georgia (UGA) and Utah State University (USU) IRBs. Please note that unless the UGA or USU IRB requires that we do so, no data will be stored in hard copy form.

Note: Standard participant metadata = Participant codes: early childhood education program block (pre-block, block 1, etc.), ethnicity, age, gender; Research setting: face-to-face, non-laboratory; Dates of data collection and analysis; Course completion and course grade

Data	Digital Form	Metadata	QA
Survey	Spreadsheet (.xlsx, .sav) file with survey responses	Standard participant metadata Research variables: Mastery, performance goal orientations; autonomous, controlled motivation; perceived value; expectancy for success; interests Data collection method: self-report survey	*1*
Classroom observation	Digital video (.mp4) files and transcripts (.docx), spreadsheet file with observation analysis and notes (.xlsx, .sav)	Standard participant metadata Research variables: debugging process; debugging strategy use; motivational and cognitive challenges Data collection method: digital video recording, transcription	*2*
Retrospective think-aloud protocols	Digital video (.mp4) files and transcripts (.docx), spreadsheet file with protocol analysis and notes (.xlsx, .sav)	Standard participant metadata Research variables: debugging process; debugging strategy use; motivational and cognitive challenges Data collection method: digital video recording, transcription	*2*
Interview	Video files (e.g., .mp4 file) and transcripts (.docx file)	Standard participant metadata Research variables: debugging process; debugging strategy use; motivational and cognitive challenges Data collection method: digital video recording, transcription	*2*
Artifact	Robot programming files, robot programming screen recordings, programmed robots, lesson designs (e.g., .jpeg, .pdf, .mp4, .ev3, .docx, pptx)	Standard participant metadata Research variables: output of robot programming and debugging; use of robotics to teach problem-solving; problem-solving integration in dramatic play; facilitation of dramatic play between kids and robots Data collection method: collecting artifacts	*3*
Debugging test	Spreadsheet file with question responses	Standard participant metadata Research variables: Debugging task performance efficiency (time), effectiveness (solution correctness), and learning (a deduction of a causal model of the error) Data collection method: tests	*1*

Quality Assurance
The research team will randomly select 5% of each of the following to verify if:
1. Spreadsheet information (a) is accurate against data collection archive, and (b) number/ size of files

matches up with historical records of number/ size of files in database;

2. Transcript excerpts (a) are accurate against recorded audio and videos, and (b) number/ size of video and transcript files matches up with historical records of number/ size of files in database; and

3. Artifacts (a) metadata match up with participant identifier, (b) content and structure of artifacts match with files on media creation device, and (c) number/ size of files matches up with historical records of number/ size of files in database.

Data Access and Sharing

Final authority for data access and sharing will be determined by the UGA and USU IRBs.

Rights and responsibilities regarding data: Except when preempted by funding agreements, data collected during research conducted for this project belongs to UGA and USU. When research team members leave the university, they may take copies of data from research on which they worked, but the original data will remain at UGA and USU with the respective PI.

Access: All computer files will be stored on password-protected hard drive space that is accessible via Apple File Protocol (Mac) or Server Message Block (PC). Copies of files will also be stored on external hard drives, which will be both password-protected and locked in file cabinets when not in use, and on project computers, which will be password-protected. Additionally, firewalls will be enabled at all times on project computers to prevent unauthorized access.

Sharing: De-identified raw data in the above table may be shared with researchers outside of the present research team. Other than transcripts, audio and video data cannot feasibly be completely de-identified, and so will not be shared with other researchers. De-identified data that can be shared will be shared in a timely manner; the research team will make every effort to respond to requests for shareable data within two weeks during regularly scheduled university sessions. If data has not yet been de-identified, then sharing cannot happen until de-identification takes place.

Publication: Raw data will not be published, but products of the date analysis will be shared with researchers and practitioners through scientific meetings, journal publications, and other publications.

Data Archiving and Preservation

Final authority for data archiving and preservation will be determined by the UGA and USU IRBs. A password-protected spreadsheet will contain names, associated participant IDs, and, if applicable, pseudonyms used in research reports. Only research team will have access to this file. Once data has been matched, participant names will be removed from all research records and replaced with a participant ID. Data will be retained for as long as is determined to be permissible by the IRBs.