

Template for eResearch Africa 2017

Poster Submissions

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Title	DATA MANAGEMENT AND ANALYSIS: PERCEPTIONS OF CARPENTRY LEARNERS
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Focus area	RESEARCH DATA MANAGEMENT

ABSTRACT

Successful research programs include a clear data management and analysis strategy. Lack of training for researchers to effectively manage and analyse their data impedes research progress. Data Carpentry, a member of the 501(c)3 non-profit NumFOCUS, addresses this lack of training by developing and teaching workshops on the fundamental data skills needed to conduct research. To better understand learners' experiences with data management and analysis tools (R, Python, SQL), pre and post-workshop surveys were conducted for Data Carpentry's workshops in the United States. The purpose of this study was to assess learner's self-reported experiences with open-source software (OSS) for data management and analysis (R, Python, SQL), and their perceptions of the benefits of using scripting languages to manage and analyse their data.

A 25-item survey was developed including demographic questions and Likert-items pertaining to learner's experience with programming languages (R, Python, etc.) and database management software (Access, SQL, etc.). The survey also included Likert-items pertaining to learner's attitudes and perceptions of their data management strategies. The survey was administered via SurveyMonkey to ~1200 learners, and descriptive statistics and several non-parametric tests were conducted to compare similarities and differences with respect to gender and educational status (undergraduate, graduate, post-doc, etc.).

Results showed that, in general, learners were not satisfied with their data management strategy and data analysis workflow prior to attending a Data Carpentry workshop. Additionally, the majority of learners used non-open source software to conduct their research. By attending a Data Carpentry workshop, learners hoped to be able to analyse and visually display their data more quickly and efficiently, especially for large data sets.

As data sharing, management, and analysis has become a significant conversation globally, training for researchers to effectively manage, analyse, and share their data is key. Therefore, Data Carpentry's goal is to improve our assessment efforts to ensure our workshops are enabling learners to pursue data driven discovery through high-quality training.

ABOUT THE AUTHOR

Dr. Kari L. Jordan is the Deputy Director of Assessment for Data Carpentry, a non-profit that develops and teaches workshops on the fundamental data skills needed to conduct research. Dr. Jordan's research

experience includes self-efficacy of underrepresented engineering students, evidence-based instructional practices among engineering faculty