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**TENNESSEE**  
KNOXVILLE

March 5, 2019

Dr. Yeping Li  
Professor, Department of Teaching, Learning and Culture,  
Texas A&M University  
Editor, *International Journal of STEM Education*

Dear Dr. Yeping Li,

I am writing to submit the manuscript 'How Youth Experience Work With Data in Summer STEM Programs: Findings From An Experience Sampling Approach' for your consideration for publication in the *International Journal of STEM Education*. I am submitting this manuscript on behalf of myself and my co-authors Drs. Jennifer A. Schmidt (Michigan State University) and Matthew J. Koehler (Michigan State University).

This manuscript explores how more than 200 early adolescents from nine out-of-school STEM programs worked with data by forming questions, constructing measures, creating models, and representing data. We used an innovative methodology, the Experience Sampling Method in order to measure individual students' engagement during specific activities that involve work with data. We report findings with respect to how frequent work with data in summer programs is, what profiles (or common patterns) of engagement emerge from data collected via ESM, and how work with data and youth characteristics relate to their engagement. We discuss implications with respect to the importance of work with data across STEM content areas and to engagement in informal learning environments such as summer STEM programs.

Neither the manuscript nor any parts of its content are currently under consideration in another journal.

Thank you for your consideration. I look forward to hearing from you soon,

Sincerely,

Joshua M. Rosenberg  
Assistant Professor, STEM Education  
University of Tennessee, Knoxville

# How Youth Experience Work With Data in Summer STEM Programs: Findings From An Experience Sampling Approach

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## Author note

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# How Youth Experience Work With Data in Summer STEM Programs: Findings From An Experience Sampling Approach

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## Author note

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## **Declarations**

### **Availability of Data and Material**

Statistical code for the analyses completed for this study is available at the repository here: <https://osf.io/65ckh/>. The data are available upon request from the authors.

### **Competing Interests**

The authors declare that they have no competing interests.

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### **Authors' Contributions**

Author 1 analyzed and interpreted the data and wrote the manuscript. Author 2 collected the data, wrote sections of the manuscript, and served as Author 1's thesis co-chair. Author 3 served as Author 1's thesis co-chair and wrote sections of the manuscript. All authors read and approved the final manuscript.

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### **Authors' Information**

This manuscript is on research that Author 1 carried out to satisfy the requirements of his dissertation in partial fulfilment of the requirements for the degree of Educational Psychology and Educational Technology – Doctor of Philosophy from Michigan State University.