



## 2024 Annual Summary of Publications in the Journal of Research in Science, Mathematics and Technology Education

Compiled by G. Michael Bowen & Gerald Tembrevilla

Please note that the APA references are available at the article.

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### Editorial

#### [Why Teach NOS? Combatting Science Denial and Mistrust](#)

Renee Schwartz

DOI: <https://doi.org/10.31756/jrsmte.712>

### Research Articles

#### Volume 7, Issue 1

#### [Planning an Informal STEM Event? Try the Assets-based Approach to Planning and Research for Informal STEM Events](#)

Jennifer Meadows, Jane Baker, Nyasha Dzenga, Shawn Hinkel, Carey Ann Wilson

**Keywords:** logic model, assets-based outcome model, informal STEM events, program planning and evaluation (PPE)

DOI: <https://doi.org/10.31756/jrsmte.711>

#### [Current attitudes on digital interactive fiction and text adventure games within learning contexts: A systematic literature review](#)

Tyler B Wright, Jennifer L Weible

**Keywords:** interactive fiction, text adventures, digital storytelling, game development, multidisciplinary learning

DOI: <https://doi.org/10.31756/jrsmte.713>

**Volume 7, Issue 2**

**Difficulty-Generating Features of Text-based Physics Tasks**

**Knut Schwippert, Kendra Zilz, Dietmar Hoettecke**

**Keywords:** Test items, Item difficulty, Teaching and learning electricity

DOI: <https://doi.org/10.31756/jrsmte.721>

**A Pilot Study of Supporting GTA Professional Development and Educator Identity in Engineering**

**Gokce Akcayir, Janelle McFeetors, Mijung Kim, Kerry Rose, Marnie Jamieson, Kristian Basaraba, Qingna Jin, Duncan Buchanan**

**Keywords:** Test items, Item difficulty, Teaching and learning electricity

DOI: <https://doi.org/10.31756/jrsmte.722>

**Seeing Through the Eyes of Classroom Observers: The Case of Rating Contrasted Groups of Lessons With Classroom Observation Measures**

**Kathleen Lynch**

**Keywords:** Mathematics teaching, classroom observations, TIMSS, mathematics instruction

DOI: <https://doi.org/10.31756/jrsmte.723>

**Volume 7, Issue 3**

**Becoming a Globally Competent Educator: A Self-Study of My Theoretical and Practical Understandings of Global Competency**

**Arya Karumanthra, Gayle Buck**

**Keywords:** global competence, self-study, teacher preparation, science education

DOI: <https://doi.org/10.31756/jrsmte.731>

**Chinese Pioneering Educators' Understandings and Practices of STEM Education**

**Qiu Zhong, Conghui Liu, Adam Vincent Maltese, Jing Yang**

**Keywords:** global competence, self-study, teacher preparation, science education

DOI: <https://doi.org/10.31756/jrsmte.732>

## Sociocultural influences on primary teachers implementing TouchTimes

**Sandy Bakos**

**Keywords:** double instrumental genesis, primary school teachers, multiplication, touchscreen technology, TouchTimes.

DOI: <https://doi.org/10.31756/jrsmt.733>

### **Graduate Special Issue, Volume 7, Issue SI**

## Improving STEM Education through Resource Activation: A Study of Culturally Relevant Teaching for Critical Data Literacy in a High School Science Classroom\*

**Joeun Shim, Susan A Yoon**

**Keywords:** Resource Activation, Culturally Relevant Teaching, STEM Integration, Data Literacy

DOI: <https://doi.org/10.31756/jrsmt.311SI>

## Persistence of STEM Majors in Higher Education

**Becca Hedge**

**Keywords:** STEM, Affirmation, Belonging, Academic confidence, Persistence

DOI: <https://doi.org/10.31756/jrsmt.312SI>

## Teacher Self-Efficacy and Preparedness for Integrating STEM Education Using a Project-Based Learning Approach

**Camryn Brooke Tucker, Kelly Overby Byrd, Drew Gossen, Karen Morrison**

**Keywords:** STEM education, project-based learning, teacher self-efficacy, elementary teachers

DOI: <https://doi.org/10.31756/jrsmt.313SI>

## Investigating Pedagogies in Undergraduate Precalculus and their Relationships to Students' Attitudes Towards Mathematics and Perseverance in Problem-Solving\*

**Amy Daniel, Joseph DiNapoli**

**Keywords:** Precalculus, Attitudes towards mathematics, Perseverance in problem-solving, Curriculum, Undergraduate Mathematics Education

DOI: <https://doi.org/10.31756/jrsmt.314SI>

## Global Competency Integration in STEAM Fields in Higher Education

**Lori Jean Bushey**

**Keywords:** Global Competency, STEAM, Curriculum, Higher Education

DOI: <https://doi.org/10.31756/jrsmt.315SI>

## Mathematics Graduate Students' Teacher Identity Development: Examining Roles Within the Teaching Assistant Position

**T. Royce Olarte, Micah Swartz, Sarah A. Roberts**

**Keywords:** Mathematics Graduate Students, Teaching Assistants, Teacher Identities, Role Identities

DOI: <https://doi.org/10.31756/jrsmt.316SI>

## Defining Spatial Reasoning: A Content Analysis to Explicate Spatial Reasoning Skills for Early Childhood Educators' Use\*

**Robyn K Pinilla**

**Keywords:** Spatial Reasoning, Content Analysis, Mathematics Education, Early Childhood Education

DOI: <https://doi.org/10.31756/jrsmt.317SI>

## Novel Representations of the Experiences of Calculus I Students' Participation in the Parallel Spaces of Coursework and Complementary Instruction

**Karmen Tracy Yu, Steven Greenstein**

**Keywords:** Data Analysis, Data Visualization, Calculus, Undergraduate Education

DOI: <https://doi.org/10.31756/jrsmt.318SI>

## Evaluating the Influence of Instructional Approaches on the Mathematical Achievement of Immigrant Students

**Malihe Manzouri**

**Keywords:** Mathematics Education, Immigrant Students, Pedagogical Approaches, Iranian Student

DOI: <https://doi.org/10.31756/jrsmt.319SI>

\* Medal Recipients