Journals of Interest - Mathematics and Science Education

Jan/Feb 2016

TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Journal</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Research</td>
<td>2</td>
</tr>
<tr>
<td>Volume 44, Issue 9</td>
<td>2</td>
</tr>
<tr>
<td>Educational Studies in Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Volume 91, Issue 1</td>
<td>3</td>
</tr>
<tr>
<td>Volume 91, Issue 2</td>
<td>4</td>
</tr>
<tr>
<td>Mathematical Thinking and Learning</td>
<td>5</td>
</tr>
<tr>
<td>Volume 17, Issue 4</td>
<td>5</td>
</tr>
<tr>
<td>Journal of Research in Science Teaching</td>
<td>6</td>
</tr>
<tr>
<td>Volume 53, Issue 1</td>
<td>6</td>
</tr>
<tr>
<td>Volume 53, Issue 2</td>
<td>7</td>
</tr>
<tr>
<td>International Journal of Science Education</td>
<td>9</td>
</tr>
<tr>
<td>Volume 37, Issue 16</td>
<td>9</td>
</tr>
<tr>
<td>Volume 37, Issue 17</td>
<td>10</td>
</tr>
<tr>
<td>Science Education</td>
<td>12</td>
</tr>
<tr>
<td>Volume 100, Issue 1</td>
<td>12</td>
</tr>
<tr>
<td>Journal of College Science Teaching</td>
<td>14</td>
</tr>
<tr>
<td>Volume 45, Issue 3</td>
<td>14</td>
</tr>
<tr>
<td>International Journal of Mathematical Education in Science and Technology</td>
<td>16</td>
</tr>
<tr>
<td>Volume 47, Issue 1</td>
<td>16</td>
</tr>
<tr>
<td>The Journal of Mathematical Behavior</td>
<td>17</td>
</tr>
<tr>
<td>Research in Mathematics Education</td>
<td>18</td>
</tr>
<tr>
<td>Volume 17, Issue 3</td>
<td>18</td>
</tr>
<tr>
<td>Journal for Research in Mathematics Education</td>
<td>20</td>
</tr>
<tr>
<td>Volume 47, Issue 1</td>
<td>20</td>
</tr>
<tr>
<td>Journal of Stem Teacher (Online)</td>
<td>21</td>
</tr>
<tr>
<td>Volume 50, Issue 1</td>
<td>21</td>
</tr>
<tr>
<td>International Journal of Research in Undergrad Mathematics Education</td>
<td>22</td>
</tr>
<tr>
<td>Volume 1, Issue 3</td>
<td>22</td>
</tr>
<tr>
<td>Journal of Mathematics Teacher Education</td>
<td>23</td>
</tr>
<tr>
<td>Volume 19, Issue 1</td>
<td>23</td>
</tr>
<tr>
<td>The Mathematics Teacher Educator</td>
<td>24</td>
</tr>
<tr>
<td>Volume 4, Issue 1</td>
<td>24</td>
</tr>
</tbody>
</table>
Educational Researcher

Volume 44, Issue 9

Feature Articles

Catherine E. Snow

2014 Wallace Foundation Distinguished Lecture: Rigor and Realism: Doing Educational Science in the Real World

Anthony S. Bryk

2014 AERA Distinguished Lecture: Accelerating How We Learn to Improve

Reviews/Essays

Matthew Gaydos

Seriously Considering Design in Educational Games
Educational Studies in Mathematics

Volume 91, Issue 1

An error correction about problem posing on a linear graph
Tuğrul Kar

Mathematical problem posing as a measure of curricular effect on students' learning: a response
Jinfa Cai, Stephen Hwang, John C. Moyer

Mathematical modelling as a professional task
Peter Frejd, Christer Bergsten

When does an argument use a generic example?
David A. Yopp, Rob Ely

“I can actually be very feminine here”: contradiction and hybridity in becoming a female mathematician
Yvette Solomon, Darinka Radovic, Laura Black

Criticising with Foucault: towards a guiding framework for socio-political studies in mathematics education
David Kollosche

Undergraduate mathematics students’ emotional experiences in Linear Algebra courses
Gustavo Martínez-Sierra

Mathematical objects through the lens of two different theoretical perspectives: APOS and OSA
Vicenç Font Moll, María Trigueros, Edelmira Badillo

Strategies and performance in elementary students’ three-digit mental addition
Csaba Csíkos

Yeping Li, Jianxing Xu
Volume 91, Issue 2

Epistemology and networking theories
Ivy Kidron

New light on old horizon: Constructing mathematical concepts, underlying abstraction processes, and sense making strategies
Thorsten Scheiner

Material encounters and media events: what kind of mathematics can a body do?
Elizabeth de Freitas

Mathematics lectures as narratives: insights from network graph methodology
Aaron Weinberg, Emilie Wiesner, Tim Fukawa-Connelly

A critical discourse analysis of practical problems in a foundation mathematics course at a South African university
Kate le Roux, Jill Adler

Combinatorial tasks and outcome listing: Examining productive listing among undergraduate students
Elise Lockwood, Bryan R. Gibson

Confidence and competence with mathematical procedures
Colin Foster

Book Review: Algebra teaching around the world. Frederick K. S. Leung, Kyungmee Park, Derek Holton, & David Clarke (Eds.) (2014)
Ian Jones
Mathematical Thinking and Learning

Volume 17, Issue 4

Expanding Notions of “Learning Trajectories” in Mathematics Education

Eric Weber, Candace Walkington & William McGalliard
pages 253-272

Preventive Support for Kindergarteners Most At-Risk for Mathematics Difficulties: Computer-Assisted Intervention

Jonna Salminen, Tuire Koponen, Pekka Räsänen & Mikko Aro
pages 273-295

Complex Listening: Supporting Students to Listen As Mathematical Sense-makers

Allison Hintz & Kersti Tyson
pages 296-326

Abraham Lincoln’s Cyphering Book and Ten Other Extraordinary Cyphering Books, by Nerida F. Ellerton and M. A. (Ken) Clements

Michael N. Fried
pages 327-332
Journal of Research in Science Teaching

Volume 53, Issue 1

On the ‘Fabric’ of our global science education research community: The art and science of writing for the Journal of Research in Science Teaching (pages 3–6)
Fouad Abd-El-Khalick and Dana L. Zeidler
Article first published online: 3 DEC 2015 | DOI: 10.1002/tea.21307

Multimodal teacher input and science learning in a middle school sheltered classroom (pages 7–30)
Ying Zhang
Article first published online: 18 DEC 2015 | DOI: 10.1002/tea.21295

Learning nature of science concepts through a research apprenticeship program: A comparative study of three approaches (pages 31–59)
Stephen R. Burgin and Troy D. Sadler
Article first published online: 31 OCT 2015 | DOI: 10.1002/tea.21296

Evaluating indicator-based methods of ‘measuring long-term impacts of a science center on its community’ (pages 60–64)
Eric Allen Jensen
Article first published online: 3 DEC 2015 | DOI: 10.1002/tea.21297

Utilizing indicator-based methods: ‘Measuring the impact of a science center on its community’ (pages 65–69)
John H. Falk and Mark D. Needham
Article first published online: 25 AUG 2015 | DOI: 10.1002/tea.21269

Comparing two forms of concept map critique activities to facilitate knowledge integration processes in evolution education (pages 70–94)
Beat A. Schwendimann and Marcia C. Linn
Article first published online: 10 APR 2015 | DOI: 10.1002/tea.21244

Young African American boys narrating identities in science (pages 95–118)
Justine M. Kane
Investigating middle school students' ability to develop energy as a framework for analyzing simple physical phenomena (pages 119–145)
Nicos Papadouris and Constantinos P. Constantinou
Article first published online: 8 MAY 2015 | DOI: 10.1002/tea.21248

From description to explanation: An empirical exploration of the African-American pipeline problem in STEM (pages 146–177)
Bryan A. Brown, J. Bryan Henderson, Salina Gray, Brian Donovan, Shayna Sullivan, Alexis Patterson and William Waggstaff
Article first published online: 2 MAY 2015 | DOI: 10.1002/tea.21249

Identifying the critical components for a conceptual understanding of the mole in secondary science classrooms (pages 181–214)
Su-Chi Fang, Christina Hart and David Clarke
Article first published online: 31 OCT 2015 | DOI: 10.1002/tea.21298

Validation of automated scoring of science assessments (pages 215–233)
Ou Lydia Liu, Joseph A. Rios, Michael Heilman, Libby Gerard and Marcia C. Linn
Article first published online: 8 JAN 2016 | DOI: 10.1002/tea.21299

Students' regulation of their emotions in a science classroom (pages 234–260)
Louisa Tomas, Donna Rigano and Stephen M. Ritchie
Article first published online: 30 DEC 2015 | DOI: 10.1002/tea.21304

Pedagogical content knowledge of argumentation: Using classroom contexts to assess high-quality PCK rather than pseudoargumentation (pages 261–290)
Katherine L. McNeill, María González-Howard, Rebecca Katsh-Singer and Suzanna Loper
How humans evolved according to grade 12 students in Singapore (pages 291–323)
Kah Huat Robin Seoh, R. Subramaniam and Yin Kiong Hoh
Article first published online: 24 JUN 2015 | DOI: 10.1002/tea.21256

A multilevel analysis of diverse learners playing life science video games: Interactions between game content, learning disability status, reading proficiency, and gender (pages 324–345)
Maya Israel, Shuai Wang and Matthew T. Marino
Article first published online: 29 SEP 2015 | DOI: 10.1002/tea.21273
International Journal of Science Education

Volume 37, Issue 16

Understanding the Influence of Learners’ Forethought on Their Use of Science Study Strategies in Postsecondary Science Learning
Karee E. Dunn & Wen-Juo Lo
pages 2597-2618

The Influence of Undergraduate Science Curriculum Reform on Students' Perceptions of their Quantitative Skills
Kelly E. Matthews, Peter Adams & Merrilyn Goos
pages 2619-2636

Development and Large-Scale Validation of an Instrument to Assess Arabic-Speaking Students' Attitudes Toward Science
Fouad Abd-El-Khalick, Ryan Summers, Ziad Said, Shuai Wang & Michael Culbertson
pages 2637-2663

The Importance of Being Colorful and Able to Fly: Interpretation and implications of children's statements on selected insects and other invertebrates
Gabriele B. Breuer, Jürg Schlegel, Peter Kauf & Reto Rupf
pages 2664-2687

The Relationships Among Scientific Epistemic Beliefs, Conceptions of Learning Science, and Motivation of Learning Science: A study of Taiwan high school students
Hsin-Ning Jessie Ho & Jyh-Chong Liang
pages 2688-2707

An Analysis of Data Activities and Instructional Supports in Middle School Science Textbooks
Bradley J. Morris, Amy M. Masnick, Katie Baker & Angela Junglen
pages 2708-2720

‘I Don’t Even Have Time to be Their Friend!’ Ethical Dilemmas in Ph.D. Supervision in the Hard Sciences
Erika Löfström & Kirsi Pyhältö
pages 2721-2739
Development and Application of a Novel Rasch-based Methodology for Evaluating Multi-Tiered Assessment Instruments: Validation and utilization of an undergraduate diagnostic test of the water cycle
William L. Romine, Dane L. Schaffer & Lloyd Barrow
pages 2740-2768

Volume 37, Issue 17
Physics Metacognition Inventory Part II: Confirmatory factor analysis and Rasch analysis
Gita Taasoobshirazi, MarLynn Bailey & John Farley
pages 2769-2786

Measuring Primary Students’ Graph Interpretation Skills Via a Performance Assessment: A case study in instrument development
Karen Peterman, Kayla A. Cranston, Marie Pryor & Ruth Kermish-Allen
pages 2787-2808

Toward an Analytic Framework of Interdisciplinary Reasoning and Communication (IRC) Processes in Science
Ji Shen, Shannon Sung & Dongmei Zhang
pages 2809-2835

Making PCK Explicit—Capturing Science Teachers’ Pedagogical Content Knowledge (PCK) in the Science Classroom
Pernilla Nilsson & Anna Vikström
pages 2836-2857

The Effects of School Gardens on Children's Science Knowledge: A randomized controlled trial of low-income elementary schools
pages 2858-2878
Studying Gender Bias in Physics Grading: The role of teaching experience and country
Sarah I. Hofer
pages 2879-2905

Repeating Knowledge Application Practice to Improve Student Performance in a Large, Introductory Science Course
Ryosuke Fujinuma & Laura A. Wendling
pages 2906-2922

Knowledge and Attitudes Towards Biotechnology of Elementary Education Preservice Teachers: The first Spanish experience
Marina Casanoves, Ángel González, Zoel Salvadó, Juan Haro & Maite Novo
pages 2923-2941
Science Education

Volume 100, Issue 1

LEEMA BERLAND and KATHLEEN CRUCET
Article first published online: 23 SEP 2015 | DOI: 10.1002/sce.21196

Department-Level Representations: A New Approach to the Study of Science Teacher Cognition (pages 30–56)
TODD L. HUTNER and ARTHUR B. MARKMAN
Article first published online: 23 SEP 2015 | DOI: 10.1002/sce.21186

Do High-Ability Students Disidentify With Science? A Descriptive Study of U.S. Ninth Graders in 2009 (pages 57–77)
LORI ANDERSEN and JASON A. CHEN
Article first published online: 30 SEP 2015 | DOI: 10.1002/sce.21197

Clarifying and Capturing “Trust” in Relation to Science Education: Dimensions of Trustworthiness within Schools and Associations with Equitable Student Achievement (pages 78–95)
LARA K. SMETANA, JULIANNE WENNER, JOHN SETTLAGE and D. BETSY MCCOACH
Article first published online: 23 SEP 2015 | DOI: 10.1002/sce.21195

The Principle–Practical Discourse Edge: Elementary Preservice and Mentor Teachers Working Together onColearning Tasks (pages 96–121)
KRISTIN L. GUNCKEL and MARCY B. WOOD
Article first published online: 12 AUG 2015 | DOI: 10.1002/sce.21187

Preservice Science Teachers’ Science Teaching Orientations and Beliefs About Science (pages 122–152)
VANESSA KIND
Article first published online: 28 SEP 2015 | DOI: 10.1002/sce.21194

Parent Explanation and Preschoolers’ Exploratory Behavior and Learning in a Shadow Exhibition (pages 153–178)
TESSA J. P. VAN SCHIJNDEL and MAARTJE E. J. RAIJMAKERS
Article first published online: 23 NOV 2015 | DOI: 10.1002/sce.21193

ASLI SEZEN-BARRIE
Article first published online: 14 DEC 2015 | DOI: 10.1002/sce.21200

MAC CANNADY
Article first published online: 14 DEC 2015 | DOI: 10.1002/sce.21201
Journal of College Science Teaching

Volume 45, Issue 3

Getting the Most Out of Dual-Listed Courses: Involving Undergraduate Students in Discussion Through Active Learning Techniques
By: Leslie Lyons Duncan, Bethany L. Burkhardt, Laura M. Benneyworth, Christopher M. Tasich, and Benjamin R. Duncan

Strategies to Recruit and Retain Students in Physical Science and Mathematics on a Diverse College Campus
By: Jen-Mei Chang, Chuhee Kwon, Lora Stevens, and Paul Buonora

Two Wrongs Make a Right: Using Pseudoscience and Reasoning Fallacies to Complement Primary Literature
By: Shawn Stover

Ways to Include Global Climate Change in Courses for Prospective Teachers
By: Emily van Zee, Emma Grobart, and Deborah Roberts-Harris

The Development of a Learning Gap Between Students With Strong Prerequisite Skills and Students With Weak Prerequisite Skills
By: Nathan B. Terry, Kimberly de La Harpe, and Frederick Kontur

Crossing Boundaries in Undergraduate Biology Education
By: Dirk Vanderklein, Mika Munakata, and Jason McManus

The Effect of Gender on Perception of Case Studies and Performance
By: Marlene Murray

Point of View: Predictably Unpredictable
By: Jeffrey R. Appling

Case Study: Student-Produced Videos for the Flipped Classroom
By: Annie Prud'homme-Genereux
Research and Teaching: Correlations Between Students' Written Responses to Lecture-Tutorial Questions and Their Understandings of Key Astrophysics Concepts
By: Jeffrey Eckenrode, Edward E. Prather, and Colin S. Wallace

Research and Teaching: Development of Undergraduate Teaching Assistants as Effective Instructors in STEM Courses
By: Stephanie B. Philipp, Thomas Tretter, and Christine V. Rich

Research and Teaching: Computational Methods in General Chemistry: Perceptions of Programming, Prior Experience, and Student Outcomes
By: Lindsay B. Wheeler, Jennie L. Chiu, and Charles M. Grisham
International Journal of Mathematical Education in Science and Technology

Volume 47, Issue 1

Investigating students' levels of engagement with mathematics: critical events, motivations, and influences on behaviour

Martin Grehan, Ciarán Mac an Bhaird & Ann O'Shea
pages 1-28

How to make mathematics relevant to first-year engineering students: perceptions of students on student-produced resources

Birgit Loch & Julia Lamborn
pages 29-44

Generating the patterns of variation with GeoGebra: the case of polynomial approximations

Iiris Attorps, Kjell Björk & Mirko Radic
pages 45-57

The use of digital technology in finding multiple paths to solve and extend an equilateral triangle task

Manuel Santos-Trigo & Aaron Reyes-Rodriguez
pages 58-81

A fresh look at linear ordinary differential equations with constant coefficients. Revisiting the impulsive response method using factorization

Roberto Camporesi
pages 82-99

Factors affecting student success in a first-year mathematics course: a South African experience

Rita Kizito, Justin Munyakazi & Clement Basuayi
pages 100-119

What is the opposite of cat? A gentle introduction to group theory

Uri Leron & Lisser Rye Ejersbo
pages 120-132

Mathematical design of a highway exit curve

Mehmet Pakdemirli
pages 132-139
The Journal of Mathematical Behavior
Research in Mathematics Education
*Volume 17, Issue 3*

**Investigating teachers’ appraisal of unexpected moments and underlying values: an exploratory case in the context of changing mathematics classroom discourse**
Jillian M. Cavanna, Beth Herbel-Eisenmann & Wee Tiong Seah
pages 163-182

**Handling errors as they arise in whole-class interactions**
Jenni Ingram, Andrea Pitt & Fay Baldry
pages 183-197

**Dragging maintaining symmetry: can it generate the concept of inclusivity as well as a family of shapes?**
Susan K. Forsythe
pages 198-219

**Polish teachers’ conceptions of and approaches to the teaching of linear equations to grade six students: an exploratory case study**
Gosia Marschall & Paul Andrews
pages 220-238

**Perspectives on early development of number sense within a rural Amish community**
Ellen Diana Price Beverley, William Lacefield & Lucy Bush
pages 239-241

**Using modified lesson study with mathematics post-graduate teaching assistants**
Jessica M. Deshler
pages 242-243

**Ethnicity, socio-economic status, and non-mathematical masculinities**
David Pomeroy
pages 244-246
Approaches to qualitative research in mathematics education: examples of methodology and methods
Olov Viirman
pages 247-251

Handbook on the history of mathematics education
Michael N. Fried
pages 251-256
Journal for Research in Mathematics Education

Volume 47, Issue 1

EDITORIAL: Introducing the JRME Editor-Designate
Cynthia W. Langrall

Research Commentary: Educational Technology: An Equity Challenge to the Common Core
Richard Kitchen and Sarabeth Berk, University of Denver

Brief Report: Teachers’ Awareness of the Relationship Between Prior Knowledge and New Learning
Charles Hohensee, University of Delaware

Development of Probabilistic Understanding in Fourth Grade
Lyn D. English, Queensland University of Technology; Jane M. Watson, University of Tasmania

Participatory and Anticipatory Stages of Mathematical Concept Learning: Further Empirical and Theoretical Development
Martin A. Simon, Nicora Placa, and Arnon Avitzur, New York University

Book Review: Who Is Behind the Nationalization of Mathematics Education?
Reviewed by Trevor Warburton and Ed Buendia, University of Utah
Journal of Stem Teacher (Online)

Volume 50, Issue 1

An Evaluation Study of the CincySTEM ITEST Projects: Experience, Peer Support, Professional Development, and Sustainability
Gulbahar Beckett, Annette Hemmings, Kathy Wright, Melissa Sherman, Brian Sersion, Simon Jorgenson

A Process Model of the U.S. Federal Perspective on STEM
Kent Crippen, Julie Brown, Kristen Apraiz, Rich Busi, Derya Evran, Cheryl McLaughlin, Matt Peace, Ali Temurtas

Learning From Student Projects in Logic Design
John Mativo, Shaobo Huang

Expanding Earth Science in STEM: A Model
Maggie Beachner, Michael Daugherty, Vinson Carter, Lindsey Swagerty, Cathy Wissehr

Engineering Design: The Great Integrator
Michael Grubbs, Greg Strimel

Gateway Experiences to Engineering Technology: Development of an Introductory Course
Chad Laux, Abram Walton, Amy Van Epps, Darrel Sandall, Delana Cooper
International Journal of Research in Undergrad Mathematics Education

Volume 1, Issue 3

Effective Proof Reading Strategies for Comprehending Mathematical Proofs
Keith Weber

Reasoning About Solutions in Linear Algebra: the Case of Abraham and the Invertible Matrix Theorem
Megan Wawro

The Strategy of Solving Smaller, Similar Problems in the Context of Combinatorial Enumeration
Elise Lockwood

Student Perceptions of Screencast Feedback on Mathematics Assessment
Mike Robinson, Birgit Loch, Tony Croft

A Study of Calculus Instructors’ Perceptions of Approximation as a Unifying Thread of the First-Year Calculus
Kimberly S. Sofronas, Thomas C. DeFranco
Journal of Mathematics Teacher Education

Volume 19, Issue 1

Approaches and challenges in supporting mathematics teachers’ change
Olive Chapman

Exploring how teacher-related factors relate to student achievement in learning advanced algebra in technology-enhanced classrooms
Stephen J. Hegedus, John Tapper, Sara Dalton

Exploring how teacher-related factors relate to student achievement in learning advanced algebra in technology-enhanced classrooms
Stephen J. Hegedus, John Tapper, Sara Dalton

Investigating the improvement of prospective elementary teachers’ number sense in reasoning about fraction magnitude
Ian Whitacre, Susan D. Nickerson

Pedagogies of practice and opportunities to learn about classroom mathematics discussions
Hala Ghousseini, Patricio Herbst
The Mathematics Teacher Educator

Making the Most of Teacher Self-Captured Video
Elizabeth A. van Es, University of California, Irvine; Shari L. Stockero, Michigan Technological University; Miriam G. Sherin, Northwestern University; Laura R. Van Zoest, Western Michigan University; Elizabeth Dyer, Northwestern University

Mentor-Guided Lesson Study as a Tool to Support Learning in Field Experiences
Kristen N. Bieda, Jillian Cavanna, and Xueying Ji, Michigan State University

Transforming Perceptions of Proof: A Four-Part Instructional Sequence
Justin D. Boyle, University of Alabama; Sarah K. Bleiler, Middle Tennessee State University; Sean P. Yee, University of South Carolina; Yi-Yin (Winnie) Ko, Indiana State University

Enhancing Teachers’ Assessment of Mathematical Processes Through Test Analysis in University Courses
Patricia D. Hunsader, University of South Florida, Sarasota-Manatee; Barbara Zorin, St. Petersburg College; Denisse R. Thompson, University of South Florida

Developing a Mathematics Instructional Practice Survey: Considerations and Evidence
Michele B. Carney, Boise State University; Jonathan L. Breddefur, Boise State University; Gwyneth R. Hughes, Boise State University; Keith Thiede, Boise State University