The Journal of Astronomy & Earth Sciences Education (JAESE) publishes refereed papers that significantly contribute to the scholarly understanding of cutting edge issues across science education. Using a wide range of systematic education research methods including statistical analysis, qualitative inquiry, analytical work, case studies, field research and historical analysis, articles examine significant science education research questions from a broad range of perspectives.

JAESE is an internationally cited, open access journal that is essential reading for academic education researchers and education professionals. Articles may include but are not limited to any contemporary, cutting edge issue describing systematic education research and teaching innovations across the broadly defined Earth & space sciences education, including the disciplines of astronomy, climatology, energy resource science, environmental science, geology, meteorology, planetary sciences, and oceanography.

Current information for submitting a manuscript is available on our website at www.CluteInstitute.com.

Disclaimer of Liability: No responsibility is assumed by the publisher for injury and/or damages to persons or property as a result of implementing any ideas contained in the material published in the Journal of Astronomy & Earth Sciences Education. The ideas and theories contained in this publication are those of the authors only.

Copyright: As a condition of publication, the authors must grant The Clute Institute the right to disseminate their manuscript to the widest possible readership in print and electronic format. Authors must also agree to our open access policy.

Open Access Policy: As a condition of publication, the authors must grant The Clute Institute the right to disseminate their manuscript to the widest possible readership in print and electronic format. Authors must also agree to our open access policy, which is to provide immediate open access to our journals on the principle that making research freely available to the public supports a greater global exchange of knowledge. Users are allowed to read, download, copy, distribute, remix, tweak, build upon, print, search, or link the full text of the articles in this journal provided that appropriate credit is given.

Double Blind Peer Reviewed: The Clute Institute, our editors, and members of all editorial teams are committed to objective and fair double-blind peer reviews of submitted manuscripts for journal publication and will evaluate manuscripts for their intellectual content without regard to race, gender, sexual orientation, religious belief, ethnic origin, citizenship, or political philosophy.

For more information about our Code of Publication Ethics, our Plagiarism Policy, our Open Access Policy, and for manuscript guidelines, visit our website at www.CluteInstitute.com.
As we begin the fifth year, we would like to take this opportunity to publically recognize the volunteering scholars of the JAASE Editorial Advisory Board and the JAASE Board of Peer Reviewers for their support and efforts during 2018. Without these two groups of dedicated individuals, JAASE would not be the high quality journal that it is today.

Editorial Advisory Board

Andrew Fraknoi, Foothill College, United States
C. Aaron Price, Chicago Museum of Science and Industry, United States
David McKinnon, Edith Cowan University, Australia
Kim Kastens, Lamont-Doherty Earth Observatory, United States
Meredith L. McAllister, Butler University, United States
Sanlyn R. Buxner, Univ. of Arizona & Planetary Science Institute, United States
Sharon P. Schleigh, East Carolina University, United States
Stephanie J. Slater, CAPER Center for Astronomy & Physics Education Research, United States

Board of Peer Reviewers

Ajin R S, Geomatics Division, GeoVin Solutions Pvt. Ltd, India
Andrea Urban, Sapling Learning, USA
Bram Boroson, Clayton State University, USA
C. Renee James, Sam Houston State University, USA
Christopher Palma, Penn State University, USA
Christopher (Chris) Sirola, University of Southern Mississippi, USA
Cinzia Cervato, Iowa State University, USA
David Gosselin, University of Nebraska-Lincoln, USA
Doug Lombardi, Temple University, USA
Elizabeth Lewis, University of Nebraska-Lincoln, USA
Faruk SOydugan, Canakkale Onsekiz Mart University, Turkey
Georgia Gracey, Southern Illinois University Edwardsville, USA
Jacob Noel-Storr, InsightSTEM, USA
Jacqueline Dunn, Midwestern State University, USA
Jennifer Harris Forrester, University of Wyoming, USA
Julia Plummer, Pennsylvania State University, USA
Kaylan Brae Petrie, Washington State University, USA
Kendra Sibbernsen, Metropolitan Community College, USA
Kenneth C. Brandt, University of North Carolina Pembroke, USA
Kim Kastens, Lamont-Doherty Earth Observatory, USA
Kristen Thompson, Davidson College, USA
Lauren Woolsey, Harvard University, USA
Leilani Arthurs, University of Nebraska-Lincoln, USA
Lena Danaia, Charles Sturt University, Australia
Louis Rubbo, Coastal Carolina University, USA
Nicolle Zellner, Albion College, USA
Sarah Katie Guffey, University of Wyoming, USA
Süleyman Aydin, Agri Ibrahim Çeçen University, Turkey
Urban Eriksson, Kristianstad University, Sweden
W. Keith Turner, Link Observatory & Space Science Institute, Carmel Planetarium, USA
<table>
<thead>
<tr>
<th>1.</th>
<th><em>A Logistic Regression Model Comparing Astronomy And Non-Astronomy Teachers In Québec’s Elementary Schools</em> by Pierre Chastenay (Université du Québec à Montréal, Canada), Martin Riopel (Université du Québec à Montréal, Canada).</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.</td>
<td><em>What Is The Impact Of Collaborative Exams On Learning And Attitudes In Introductory Astronomy Classes?</em> by Scott T. Miller (Sam Houston State University, USA), C. Renée James (Sam Houston State University, USA).</td>
</tr>
</tbody>
</table>
Your Article Benefits From A Compelling Conclusion

Timothy F. Slater, University of Wyoming, USA

ABSTRACT

In this era of Internet-based, open-access journals, the careful construction of a powerful conclusion section is vital to publishing an influential and highly cited paper. The most compelling opening paragraphs for the conclusion section clearly provides: (i) the overarching question that the study is trying to answer; (ii) a simplified statement about the method used to gather evidence; (iii) an unambiguously clear answer to the research question; (iv) a paragraph about why we as a community should care about these results; and (v) a specific listing of what the next fruitful steps are needed by the broader research community. By following this simply five-step formula, authors are much more likely to provide readers—and peer reviewers—with a compelling conclusion section that results in a more frequently cited and widely influential paper.

Keywords: Discipline-Based Education Research; Publishing

With the wide proliferation of Internet-accessible journals, there are more articles to read than ever before to support your educational research. Instead of burying oneself among the dimly lit, dusty shelves of some library with a stack of printed journals to carefully read cover to cover, today’s researchers are much more likely to skim articles on a computer or even a cell phone. As a result, the purposeful construction of every article’s abstract is vitally important if that article is going to make a contribution to the scholarly landscape (Slater, 2016).

Nowadays, if an article’s abstract is sufficiently compelling, contemporary researchers generally quickly advance to read an article’s conclusion section before deciding whether or not to invest the time and intellectual to fully understand the all of an article’s components. Unfortunately, many authors are exhausted by the time the get to the end of the initial article drafting process and dedicate far too little intellectual investment to making a sound, evidence-based conclusion that naturally leads to fruitful research inquiries for the future. In fact, the number one reason that article’s get rejection recommendation by reviewers is that the evidence provided is not tightly aligned with the conclusions advanced. So just how does one go about meticulously constructing a conclusion section that powerfully conveys the bottom line of one’s research?

For articles in the Journal of Astronomy & Earth Sciences Education (www.JAESE.org), and most other discipline-based education research journals, the most compelling opening paragraphs for the conclusion section clearly state several things. The first is that the opening sentence restates the overarching question that the study is trying to answer. Most readers are reading your article in the same session they are reading a stack of other articles, and it is easy to get confused or lose track of one’s place. As a result, authors would be well advised to restate the overarching research question or reason for the study so that readers know precisely what the conclusions about to be summarized are referring to. In the same way, the best papers provide in the conclusion a simplified statement about how the team went about trying to answer the question. This second component is important because the question, the method, the evidence, and the conclusion need to be aligned and helping readers see these study attributes together makes it easier to judge the quality of the study. The third component of a compelling conclusion is an unambiguously clear answer to the question. This statement should be written specifically with the busy reader in mind, because most people are reading your article are skimming the conclusion section and trying to decide whether or not to invest time in really understanding the details of the study presented in the article.
The fourth component is perhaps the most important part of the conclusion section. This subsection needs to provide a compelling and coherent statement about why we as a community should care about these results. The implications of a study are not always obvious to the casual reader, who really does need to know why this work is critical to moving the field forward or providing insight to practitioners.

Probably the weakest component to most conclusion sections is a statement about future research questions. This fifth and final component needs to provide a clear pathway to help researchers focus on what are the next fruitful steps the research community needs to take. One should note that this should not be, “repeat the same study with a larger sample size” as that isn’t particularly useful to other researchers. Instead, providing future research questions are needed to drive the broader scholarly line of inquiry to the next step in understanding what is going on. By following this simply five-step formula, authors are much more likely to provide readers—and peer-reviewers—with a compelling conclusion section that results in a more frequently cited and widely influential paper.

REFERENCES: