How to write a literature review article for *JGE*: key strategies for a successful publication

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Wait! I write literature reviews

all the time. Is this the same thing?

No! Most scientific articles include at least a

partial review of previous work in order to

situate the study within the current body of

knowledge. A literature review article is

Purpose

The purpose of this poster is to provide recommendations and strategies to guide potential authors in preparing quality literature review articles for the Journal of Geoscience Education.

What is a literature review article?

Consistent with other types of research studies, literature reviews are

systematic, methodologically sound, and generate

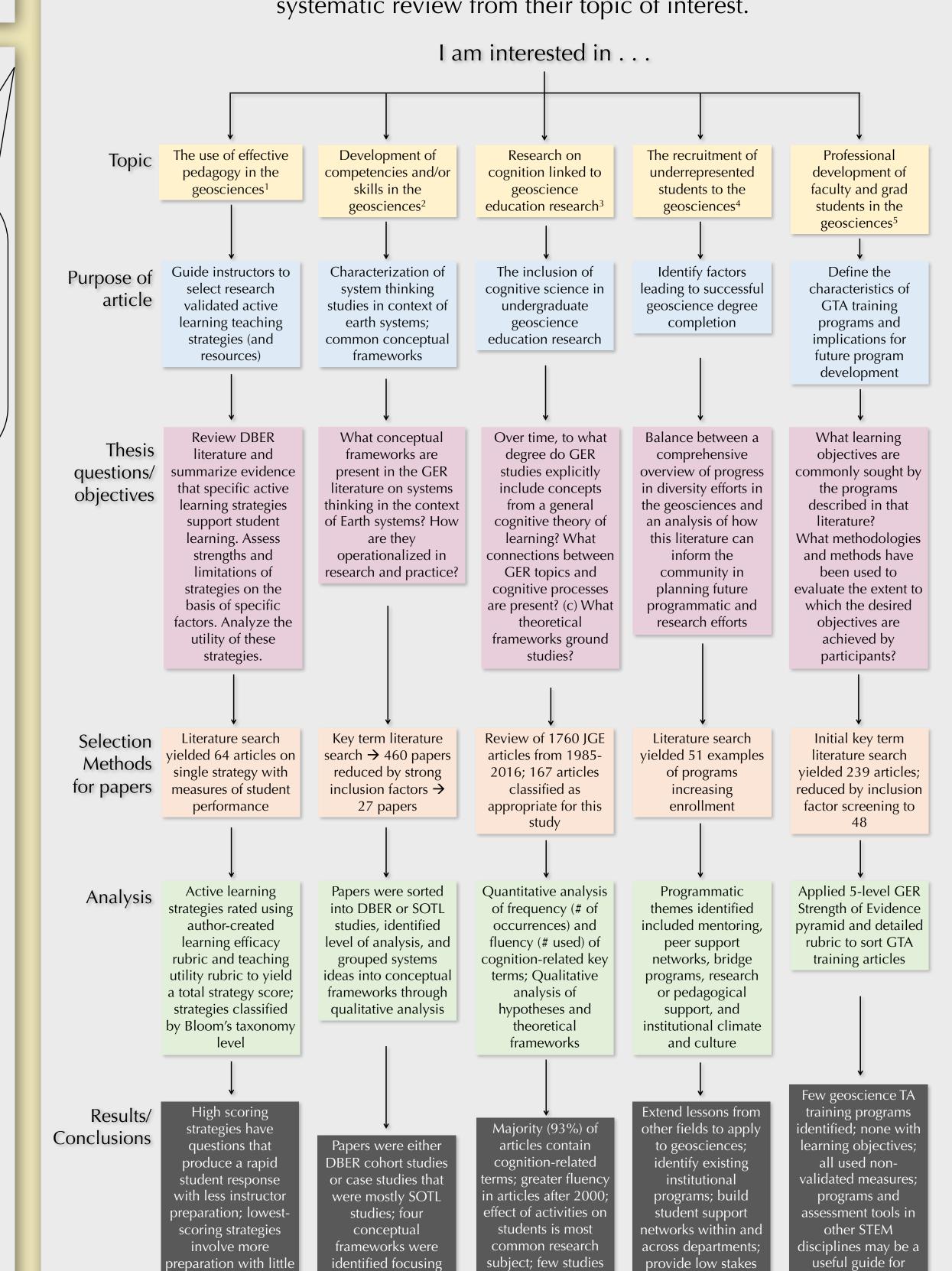
new knowledge.

They address a focused purpose or question with the aim of synthesizing and evaluating the published literature.

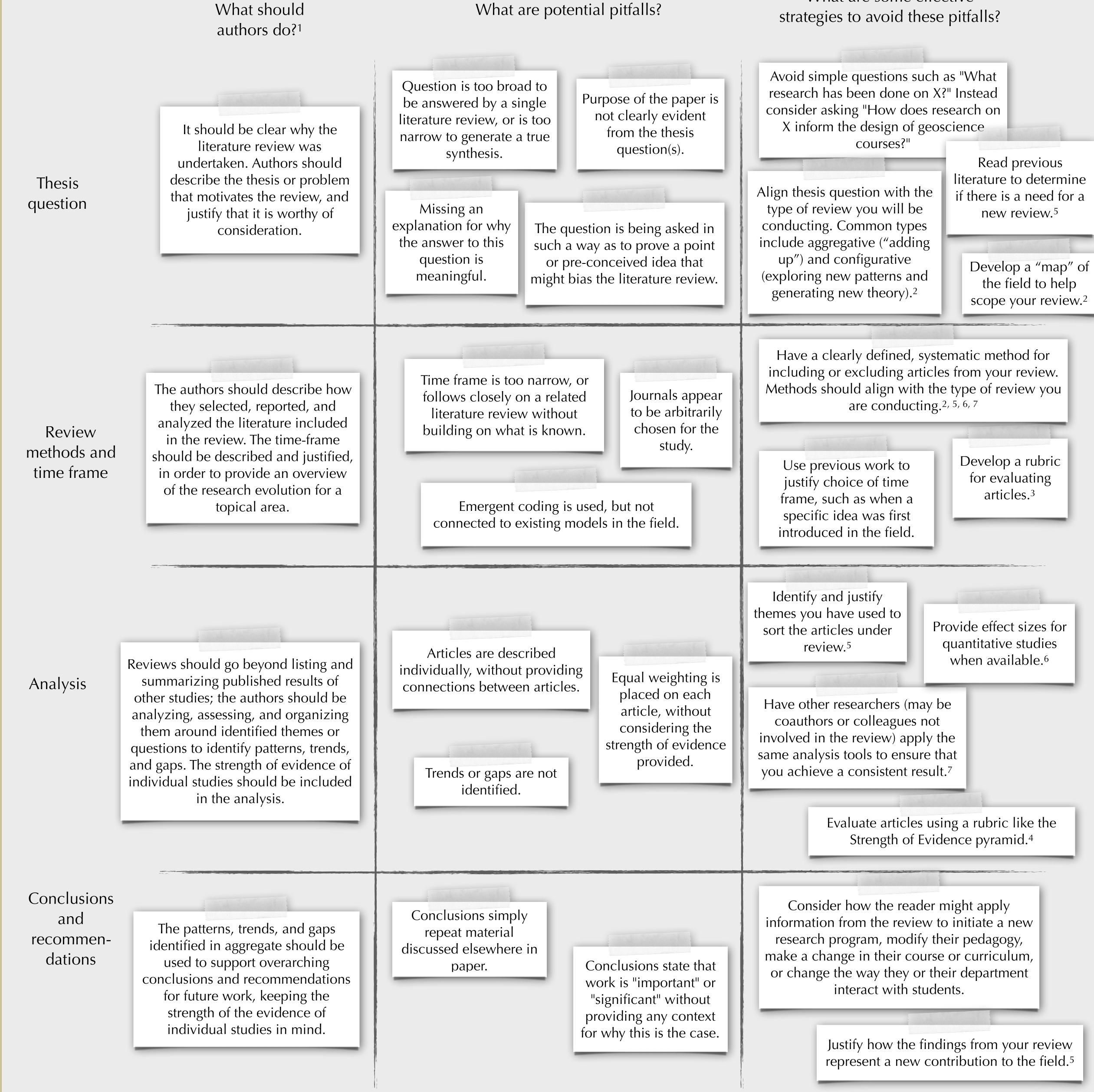
something entirely different. The two most common types of articles published by JGE are Research articles and Curriculum and Instruction (C&I) papers. The table compares and contrasts the key components of a literature review with these other types of articles.

Characteristics of Article	Research	C & I	Literature Review
Places work in context of relevant published work	•	✓	Discussion of existing review articles and relevant literature that situates the findings of the review in context.
Defines specific study population and setting	✓	✓	Less significant; may happen broadly if review focuses on types of students or educational settings (e.g., college students; lab classes)
Defines purpose of paper in form of a hypothesis, learning goals, or thesis question	•	•	Why was the review undertaken? (e.g., Assess the strengths and limitations of active learning strategies) Synthesizes published literature; describes patterns, trends gaps.
Defines project design and strategies used for data collection	•	✓	Description of inclusion (and exclusion) criteria for selecting and screening papers such as literature sources and time frame.
Discussion of methods of analysis and interpretation of results	•	✓	Selected articles reviewed against clearly defined criteria; may involve use of a classification scheme or rubric to identify themes or patterns; strength of evidence considered;
Describes study limitations, implications, recommendations	•	✓	Perhaps more than their research or curriculum and instruction equivalents, literature reviews may have a broad set of conclusions that suggest a range of potential future projects

Recent examples from *JGE* The figure below outlines several recent publications in order to illustrate the components of an article and how the authors approached constructing a systematic review from their topic of interest. I am interested in .



Essential elements of a systematic literature review article



Citations: ¹JGE, 2019; ²Gough et al., 2012; ³Bitting et al., 2017; ⁴St. John & McNeal, 2017; ⁵Torraco, 2005; ⁶Gordon et al., 2010; ⁷Oh-Young et al., 2018

Why write a literature review article for JGE?

Bring ideas from other communities to the geoscience education research community

- Recent reviews have addressed intersectionality and cognitive science concepts and applied them to geoscience.
- Synthesize research within geoscience education that can inform new research or curricular revisions Recent reviews have addressed the efficacy of recruitment and retention of underrepresented students into the geosciences and

Conduct a meta-analysis of curricular interventions to assess the strength of evidence across multiple studies

- Recent reviews have addressed active learning strategies.
- Literature reviews are currently a very small proportion of the articles published in JGE
- More submissions of this type would be welcomed.

how students learn systems thinking skills.

Get engaged in a new area without funding and develop a contribution along the way

* A systematic review of the literature can set up future work and is a good way to begin working with new collaborators.

Well-defined tasks and roles contribute to successful team approaches to conducting systematic reviews

question(s)

Conceptual lead(s): Sets the

project. Typically this is the

person or team who had the

initial idea and serves in th

same role as PI(s) for a

research project.

scope and purpose of the

Developing search

strategy and analytical approach. Provides

oversight for ensuring consistency, rigor, and

trustworthiness throughout search and analysis.

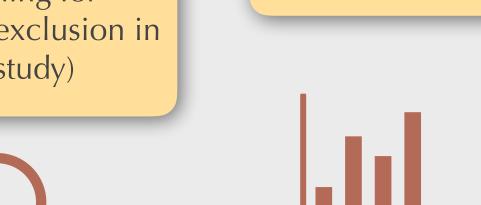
Conducting search for articles (including screening for the study)

Literature search team

articles following standard

methods determined by the

methodological lead.





Analysis team member:

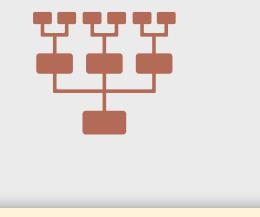
Generates dataset through

applying the tools and

methods determined by the

methodological lead.

Analyzing articles



use new data to

address thesis

question(s) and draw

Synthesizing results

and developing

conclusions

manuscript and ensuring that the final article adheres to the guidelines of the journal. Supported by team members who contribute to sections in which they were

Writing the throughout

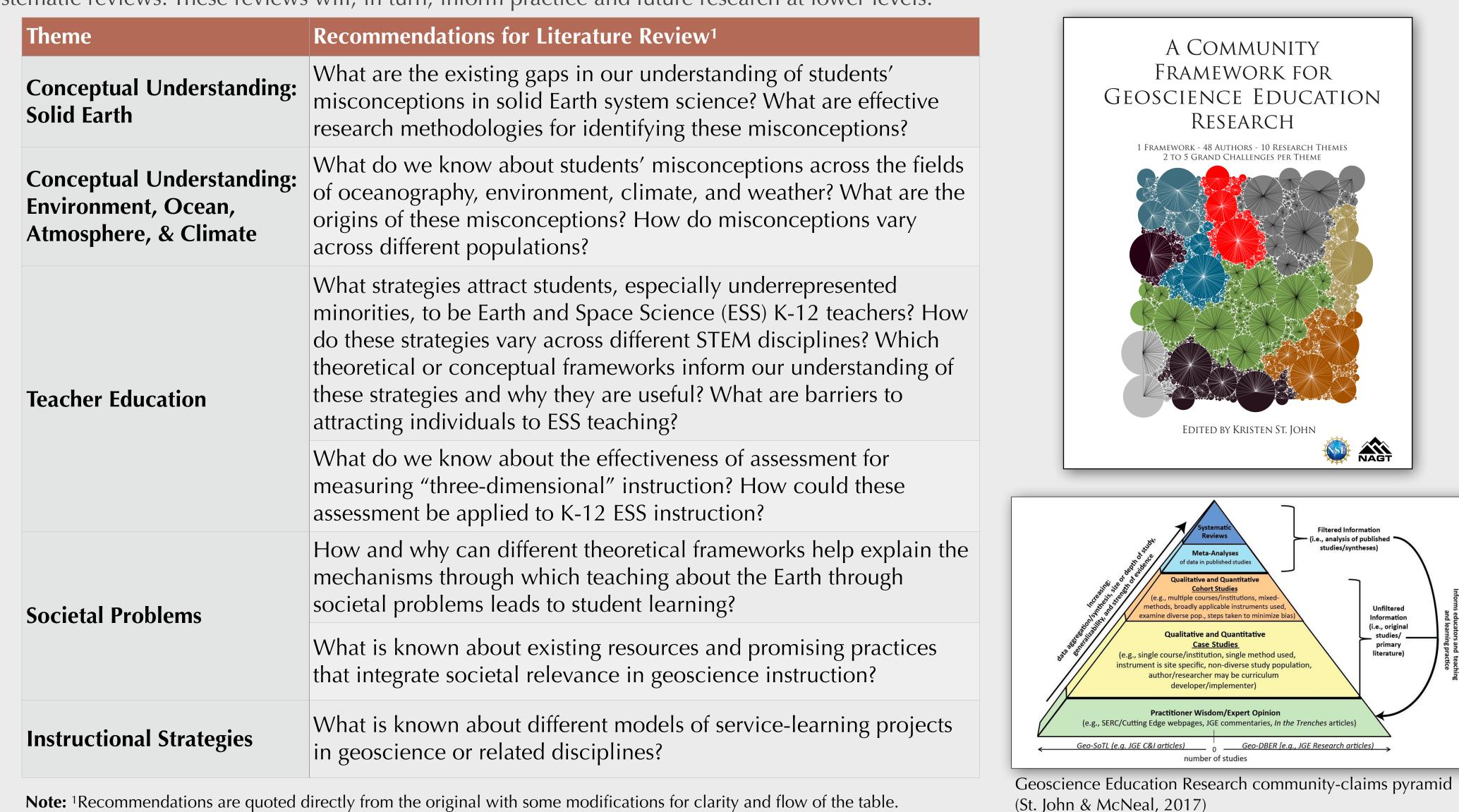
What are some effective



Lead author: Takes primary responsibility for writing the

Potential starting points

Themes in A Community Framework for Geoscience Education Research (St. John, 2018) draw attention to identified areas needing further literature reviews. These examples offer opportunities to consider how a literature review needs to be more than a summary and instead be a deeper investigation of existing knowledge of or resources on a particular topic. In each case, the original authors couple their recommendation with an explanation of the rationale for the need. Cross-theme recommendations include the need for work at all stages of the geoscience education research strength of evidence pyramid, including systematic reviews. These reviews will, in turn, inform practice and future research at lower levels.



Community Feedback: Contribute your ideas here!

What topics/needs do you have that could be addressed by a literature review?

Environment, Ocean,

Teacher Education

Societal Problems

Instructional Strategies

Atmosphere, & Climate

across different populations?

What published literature reviews do you think are good examples (within and outside of JGE)?

What challenges have you encountered when writing literature review articles?

What strategies have worked for you when conducting systematic literature reviews?

ideas presented in this poster.

References & Resources



PDF of poster

