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Understanding Practitioner and Researcher Voices in Science Education Writing

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OVERVIEW: This study (a) examined authorship of publications written by researchers for teacher journals, and by teachers for academic journals, and (b) the use of academic research in practitioner journals.

AUDIENCE: District science coordinators, Doctoral advisors, Environmental educators, Formal educators, K-12 science teachers, Researchers/Researcher supervisors, Science communication practitioners, Science education leaders, Secondary science teachers, Teacher educators, Biology educators, Chemistry educators, Physics educators, Earth science educators, STEM educators, Engineering educators, Elementary science teachers

KEY POINTS

- Academic and teacher practitioner collaborations are infrequent, even in practitioner journals.
- Articles in practitioner journals cite books and other sources of information much more frequently than academic sources irrespective of the affiliation (e.g., higher education vs. K-12) of the author.
- Recommendations include giving teachers better access to sources of published research, providing research summaries for lay audiences, & incentivizing practitioners to engage in research and writing.

INTRODUCTION. Disconnects between teacher and research communities continue to exist, despite the benefits that each may offer to teaching and learning. The language used by researchers in academic writing contributes to making their findings inaccessible to non-researcher audiences. Another issue with communicating findings to teachers is that they are often discussed from a very contextually specific perspective, thereby appearing unhelpful to teachers working in a different context. Collaborations between teacher and researcher practitioner communities, particularly in writing, may help with knowledge mobilization from research to teaching. This is particularly true if these collaborations are bi-directional (with knowledge flowing both ways) rather than unidirectional (the more common researcher → teacher information flow.)

FINDINGS. Through studying publication and citation practices in academic and practitioner journals, as well as the affiliations of the authors of those publications, the following findings were reported:

- Practitioners rarely publish, even as co-authors, in science education research journals.
- Academics publish in practitioner journals somewhat often (39% of articles authored by academics alone, 24% of articles are co-authored by academics and practitioners).
- Citations of articles in the top research journals in science education are infrequently found in practitioner journal articles (< 5% of citations); more frequently books (such as NGSS documents), academic books, and websites are cited.
- The low citation rate of leading science education research journals in practitioner journals is stable across the different author affiliations.
- Science education journal articles are cited much less in "columns" in practitioner journals than they are in other article types (i.e., those focused on information, classroom practice, or classroom activity).

TAKEAWAYS. More collaboration by academics writing for practitioner journals is needed so that the articles are informed with the contemporary classroom lens that practitioners can bring to the writing.

- Practitioners might better appreciate the utility of academic research to their classrooms if science education research articles were cited more, rather than secondary sources in practitioner journals.
- Practitioners more actively participating with academic research might help that research be more focused on classroom practicalities and needs, perhaps through mixed participants, bi-directional collaborations, and Communities of Practice where they can also learn more about the conduct of research.

Academic journals could provide more resources directed towards practitioners, such as these Research Briefs, and the "Innovation to Practice" short articles found in School Science and Mathematics.

Full Title: Crossing Boundaries between Research and Practitioner Communities: The Role of Research Use and Cross-community Journal Authorship