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SoTL and STEM

A Review of *The Scholarship of Teaching and Learning: A Guide for Scientists, Engineers, and Mathematicians*, by Jacqueline M. Dewar, Curtis D. Bennett, and Matthew A. Fisher, Oxford University Press, 2018

KEYWORDS

SoTL, STEM, research, learning resources, interdisciplinary

“It is our awareness of being unfinished that makes us educable.” This statement by Paulo Freire opens the foreword of *The Scholarship of Teaching and Learning—A Guide for Scientists, Engineers, and Mathematicians*. It creates a landscape for the contents of the book.

Authors Jacqueline Dewar, Curtis Bennett, and Matthew Fisher explore the tenets of the scholarship of teaching and learning (SoTL) and its application for academics in the science, technology, engineering, and mathematics, or STEM disciplines. In doing so, they respect the disciplines of science, engineering and mathematics, and acknowledge some of the tensions that SoTL and discipline-specific research have. The book is not intended to solely support or advocate for the promotion of SoTL within the applied sciences, but rather to explain, through examples, how to develop an appreciation for SoTL outputs. By “SoTL outputs,” I am referring broadly to the various products of SoTL work that can have a positive impact on teaching and learning. This could include the various forms of going public, as well as SoTL-based reflection and dialogue. In reading and digesting the content of each chapter, it is clear that the authors have considered a journey through the SoTL landscape by presenting protocols for SoTL research, publication, and the dissemination of SoTL work.

Overall the book provides a useful starting point for academics within the STEM disciplines by introducing the concept and potential outputs for SoTL. The chapters are written in an accessible and easy-to-navigate fashion that enables the reader to better comprehend how SoTL output is achieved. The appendices further enhance the text by providing necessary and useful resources for aspiring SoTL researchers and practitioners. The authors do well in addressing some fundamental challenges of SoTL scholarship by analysing processes and protocols for SoTL research.

The book is aimed, at times, at entry-level academics or junior faculty members who may require support and induction into SoTL research. It also provides a scaffold for more experienced academics who wish to make public their teaching and learning, by fully understanding the road to SoTL publication and acceptance of SoTL outputs within a discipline specific economy. However, what is not always clear is the demonstration of impact of SoTL output and how scholars in the STEM disciplines have, or are aiming to, measure the impact of their outputs.

The book was written for an international audience, though the content does not appear to be reflective of, or for, a multinational audience. The authors do acknowledge the limitations and problems in developing the book from a multinational perspective. One presenting issue is the use of language in defining and explaining SoTL values.

Another limitation is some confusion regarding the differences between SoTL and education research. It would, for example, be useful for the authors to reference Felten’s (2013) five principles of SoTL and provide examples from the STEM disciplines to illustrate how these are being achieved.

Although the authors have adopted a research methodology framework to explain how to conduct qualitative research within SoTL, the book would benefit from a review and deeper consideration of the current research designs employed in SoTL-specific publications and then provide guidance on impact and value of these methodologies. At times it is unclear whether the book is focused on SoTL output or is simply an adaptation of mainstream research methodologies to support the value of SoTL research.

A major limitation concerns the attempt to reach an international community of STEM academics and researchers. The appendices could be developed to document and support international advances in STEM and SoTL. This would better support the reader's understanding of the global impact, value, measure, and practice of a wider SoTL community. Perhaps another useful appendix could be the number of STEM academics who attend, or have attended, the ISSoTL conferences over the past 5 years. This would enable the reader to develop a greater awareness/appreciation for how STEM academics interact with, and value, SoTL engagement.

One key principle of SoTL is that it needs to be conducted in partnership with students and further becomes an inquiry into student learning. Partnership with students begins with a clear understanding and application of ethical principles when conducting research involving students. I expand from there to ultimately engage with students as co-inquirers into teaching and learning. These elements are not made explicit within the confines of the text.

The text is recommended for SoTL practitioners and those aspiring to learn more about SoTL research protocols within the STEM subjects. The chapters and appendices provide useful and interesting examples of methodologies, instruments (including surveys), for doing SoTL research. Readers should be mindful of the limitations of the book and consider the content within the broader scope of the STEM-specific disciplines.

To conclude, it is fitting to acknowledge the words of Napoleon Bonaparte, who wrote, "show me a family of readers, and I will show you the people who move the world." By reading, analysing, and applying the lessons of this book, the seeds of SoTL will continue to grow within, and between, the disciplines.

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<https://doi.org/10.20343/teachlearninqu.1.1.121>.



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