Becoming a SoTL Scholar

Edited by Janice Miller-Young and Nancy L. Chick

ELON UNIVERSITY | CENTER FOR Engaged Learning

Elon University Center for Engaged Learning
Elon, North Carolina
www.CenterForEngagedLearning.org

Series editors: Jessie L. Moore and Peter Felten
Copyeditor and designer: Jennie Goforth

The cover art was drawn by fellow SoTL scholar Kathleen McKinney, Endowed Chair and Professor, Emeritus, Illinois State University. It was inspired by the Zentangle® Method of pattern drawing. Learn more at zentangle.com.

Cataloging-in-Publication Data
Names: Miller-Young, Janice | Chick, Nancy L.
Title: Becoming a SoTL Scholar / Janice Miller-Young and Nancy L. Chick
Description: Elon, North Carolina : Elon University Center for Engaged Learning, [2024] | Series: Center for engaged learning open access book series | Includes bibliographical references and index.
Identifiers: LCCN 2024936229 | ISBN (PDF) 978-1-951414-10-8 | ISBN (PBK) 978-1-951414-11-5 | DOI https://doi.org/10.36284/celelon.oa6
Subjects: LCSH: Education, Higher – Research | College teaching | Scholarship of Teaching and Learning
Classification: LCC LB2331.B43 2024 | DDC 378.125



Field Definition Multidisciplinary Conceptual Article

CHAPTER 12

YOU'RE HERE! NOW WHAT? A TAXONOMICAL PATHWAY FOR SUSTAINED SOTL RESEARCH ENGAGEMENT

Jeffrey W. Paul, Jillian Seniuk Cicek, and Renato B. Rodrigues
University of Manitoba, Canada

The scholarship of teaching and learning (SoTL) is a diverse field that welcomes researchers from diverse backgrounds, methodologies, and ways of knowing. However, understanding this diversity can be overwhelming to newcomers as they struggle to adapt their existing skills and expertise to SoTL research questions. These struggles have been written about extensively and exist for researchers from both quantitative (Miller-Young, Yeo, and Manarin 2018; Kelly, Nesbit, and Oliver 2012) and qualitative backgrounds (Potter and Raffoul 2023; Webb 2019), and they are not dissimilar to the struggles faced by the authors of this chapter.

Take me, the first author (Jeff), as an example. When I entered my PhD program in engineering education research (EER), I found many of my existing knowledge sets and skills were not as easily transferable as they had been in my previous career trajectory. I was formally trained in physics and have worked in the fields of geophysics, software, information technology, human factors, as well as satellite communications and navigation. In addition, I have taught courses on these topics in professional settings as well as in undergraduate and graduate programs.

Yet, when I arrived in my EER program, I was overwhelmed by its breadth and diversity. The field, emergent in Canada, included research in topics ranging from cognitive science and

learning theories to diversity and cultural aspects of learning, with methodologies ranging from quantitative to qualitative. There was a plethora of paths to walk, distinguished by approaches, questions, methodologies, and theories from which to choose. Initially, I set out to walk in all these directions and tried to master all the aspects of EER. This was challenging, in part due to the breadth, but also due to the diverse ways of knowing. This journey required not only that I adopt an entirely new lexicon, but that I experience a paradigmatic shift: I learned about and wrestled with understanding the (new-to-me) concepts of ontology, epistemology, and axiology. Centred within this challenge was the need to accept that my worldview had been primarily post-positivistic and that there were other ways of knowing that have value. Some of these new ways of knowing resonated more with the questions I wanted to ask in my research, which caused internal struggles.

Then, I discovered the Engineering Education Research Taxonomy (Finelli, Borrego, and Rasoulifar 2015). This taxonomy maps out the diversity of the field, describing the discipline in a manner that allowed me to see where my research interests lay and where they did not. This is not to say that some aspects of EER are more or less important, but rather that I did not need to master all the aspects of EER to conduct my research in EER. I could start my EER journey by mastering some elements while gaining familiarity with others.

The epiphany provided by this taxonomy was essential to my development as an EER scholar. It also suited my post-positivistic tendencies, providing a categorical and organizational way to manage my learning. My agenda was set . . . until I began to recognize through reading, talking to like-minded people, and attending SoTL events and conferences that my research interests were more suited to and at home in SoTL. So, I shifted my journey's direction and became a novice SoTL scholar.

In seeking the knowledge, skills, and lexicon to belong to SoTL, I found my struggles paralleled my struggles to understand EER, and I sought out a SoTL taxonomy to help guide me.

Though I found some informal taxonomies, such as Hutchings' four questions of SoTL (2000) and How's (2020) systematic literature review that analyzed 181 published SoTL articles, there was no comprehensive SoTL taxonomy. And SoTL is a broad field, often described as interdisciplinary, multidisciplinary, cross-disciplinary, or transdisciplinary (Poole 2013), making my need for support even greater.

So, with the encouragement of my co-authors and the editors of this book, we began this collaborative project to create a SoTL Taxonomy. I, and those I work with, have found so much value in a taxonomy on our journeys into new disciplines that we're convinced others will too. This includes people like me, novice SoTL scholars, particularly those entering this field with post-positivistic training and mindsets, but also experts who may find that mapping the field can help position their research.

This chapter will show how a SoTL taxonomy can be used to aid you on your journey into SoTL. A taxonomy can help both novice and expert SoTL researchers gain an understanding of the breadth of the field, connect to and build upon earlier work, and finally, transform disconnected SoTL inquiries into a SoTL research agenda. To achieve these goals, this chapter will also provide a general overview of taxonomies and introduce our current SoTL Taxonomy.

Before we begin, we share our positionalities so that you can understand more about our author team and how our personal journeys have influenced our need for this taxonomy.

Author Positionalities

The first author (Jeff) is also the narrator for this chapter. I have almost twenty years of experience in adult education, both in higher education and professional development. If asked, though until recently I did not have the words for this, I would have identified myself as a scholarly teacher (i.e., I sought out education research and instructional design best practices to improve my teaching) with SoTL tendencies (i.e., I tried different pedagogies and shared

my successes informally with other instructors). Currently, I am a PhD student in engineering education research (EER) studying how to improve instructor pedagogical competencies. My research is driven by my grievance that "there has to be a better way to develop an effective instructor than allowing them to practice on students for twenty years," which has been my experience until now. Within SoTL I have finally found an academic home where I feel I belong. In my recent engagement with the SoTL community, I am helping develop a SoTL taxonomy that I hope, and believe, can be beneficial for others.

The second author (Jillian) has over twenty-five years of combined training and experience in education. She identifies as an EER researcher because she found an academic home and community there, and it is the context in which she conducts her research. Currently, she is one of a handful of academics in Canada whose research agenda is formally EER (e.g., she is not doing this work off the side of her desk!). She recognizes there is a spectrum of disciplinary educational research and is interested in how researchers in informal or nascent disciplinary spaces find a "home." She was invited to author this chapter to consider how pathways to becoming an EER scholar can inform thinking on developing a SoTL research agenda. She is pleased to wrestle with these ideas with the co-authors of this chapter, who are two PhD students in her research group.

The third author (Renato) is an early-career educator and researcher with a background in engineering and philosophy, pursuing a doctoral degree in EER. He is passionate about teaching and believes that educators should be facilitators of student learning rather than mere "holders of knowledge." His diverse perspective on educational practices stems from his experience as a student in five different universities across two countries and as a teaching assistant for nine instructors in six different courses. Recently, he taught his first course and engaged in SoTL practices to enhance his teaching and, more importantly, improve student learning outcomes. Just as the EER taxonomy helped him navigate

and better understand the EER field, he believes that the SoTL Taxonomy can serve a similar purpose for those in the field of SoTL—including himself.

In summary, we come from varied academic backgrounds and diverse experiences, and yet we share one important similarity: we have found boundary crossing into EER and SoTL challenging. By making this challenge overt (by writing about it, using the EER taxonomy, and, in this case, developing a SoTL taxonomy), we have found ways to navigate new (to us) fields. We offer the SoTL Taxonomy as one way to navigate the potential challenges of SoTL. We hope (and believe) it will benefit both newcomers and experts in this field.

What Is a Taxonomy?

Hierarchical taxonomies, our focus in this chapter, originated in the biological sciences as a linked categorization tool that included broad to specific categories (e.g., order, family, genus, species, kingdom, phylum, class). When hierarchical taxonomies are discussed more generally, these categories can be referred to as the trees, branches, and sub-branches. The use of taxonomies has expanded beyond biology to be used as *knowledge organization systems* (Hedden 2010), and they are now common in many fields.

In hierarchical taxonomies, it is essential to define the trees and branches using a *controlled vocabulary* and the *native language* of the field. That is, each word has only one specific meaning, and the language used must align with common use by practitioners in the field (Hedden 2010). Additionally, a taxonomy must be *complete*, describing all relevant aspects of the field and allowing the user to uniquely classify all elements within the taxonomy, be they animals or research papers. Note that a taxonomy is not necessarily static, as it should change and grow as the field evolves and new concepts are defined. These changes may include expansion by adding new terms and sub-branches or contraction through the pruning or removal of unused branches (Levy 2004). These changes should

occur organically and be based on how the taxonomy is used by the practitioners in the field.

Essentially, a taxonomy categorizes a field of study in an organized manner. It ensures each aspect of the field is uniquely identified and demonstrates its relationship to other aspects of the field. For us, on our journey, this organization provides a map of the field, helping us understand where we are, what we already know, what type of questions we can ask, and how we might be able to answer these questions.

Developing a SoTL Taxonomy

In our introduction, we argued that a taxonomy can help a scholar understand their field; but developing a taxonomy starts with a definition of what you are trying to classify. When introducing the concept that has evolved into SoTL, Boyer (1990) did not provide a clear definition. Since then, there have been so many attempts to define the SoTL field that other authors have lamented the plethora of definitions. Evocatively, Poole and Chick (2022) found that the "definitions of our field surface like burrowing animals on a golf course, and that the debates about such definitions take place with occasional sprinkles of angst" (6). Fortunately, though there are many definitions, they tend to be similar and focus on the same core principles or ideas. Thus, despite their differences, each provides a foundational (though somewhat nuanced) understanding for the practitioner. Additionally, wrestling with this plethora of definitions helps the newcomer make sense of the field. Perhaps there are so many definitions because writing your own requires you to think about and conceptualize the field. This is particularly important in fields like EER and SoTL, as they born of other historically long-standing scholarly traditions. Thus, despite the warnings, and with enthusiasm, we add our own definition to the growing list to make transparent our understanding about the field and to anchor our work in developing this SoTL Taxonomy:

> *SoTL is the systematic investigation of a question that originates in the teaching and learning environment of a*

discipline, which is then submitted for public dissemination and peer review.

This definition is a synthesis of many other definitions and captures four key aspects: *what* is being investigated (i.e., the question), *how* is it being investigated (i.e., the research method), *where* the study is taking place (i.e., the context), and *dissemination* (i.e., the formal or informal sharing of and review of the research findings). In practice, each of these aspects is somewhat personal, as SoTL researchers tend to investigate questions that arise from the teaching or learning of *their* students in *their* classroom or program in *their* discipline.

This definition describes the basics of what SoTL means, but like most other definitions, it tends to be abstract. What is a "systematic investigation" in a SoTL context? What types of "questions" are SoTL questions? Thus, these aspects (*what*, *how*, and *where*) became the central trees for our SoTL Taxonomy, and the answers to the above questions became the branches.

An Overview of the SoTL Taxonomy

Our proposed SoTL Taxonomy was constructed following the principles outlined in Hedden (2010). The process included mining the literature for definitions, frameworks, and descriptions, which we categorized to build our initial taxonomy. Then, through consultations with experts in the field, the taxonomy continues to be refined and expanded with feedback from the community.

A high-level summary of the trees and top-level branches is shown in table 12.1. The column headers in table 12.1 represent the three trees of the SoTL Taxonomy. These trees are directly related to and expand an aspect of our synthesis definition. The **Research Focus** expands *what* question is being asked (the stimulus for the research), the **Research Context** expands *where* the research is taking place (this includes both the physical location and the level of learning), and the **Research Approach** expands *how* the investigation is being conducted (which includes the methodologies, data sources, and theoretical frameworks). Note, sharing—or

1. Research Focus (What)	2. Research Context (Where)	3. Research Approach (How)
What is the research question? What is being investigated? This is the learning issue that has piqued the curiosity of the SoTL researcher. Within this tree, there are seven branches: 1.1 Pedagogy 1.2 Assessment 1.3 Learning Tools and Technologies 1.4 Equity in Learning 1.5 Academic Support 1. 6 Student Success 1.7 SoTL Studies	*Where is the research taking place?* The context can be narrow or wide and includes both disciplinary and institutional aspects. Within this tree, there are five branches: 2.1 Discipline 2.2 Learning Level 2.3 Setting 2.4 Scope of Investigation 2.5 Population	*How is the question answered?* This describes the theoretical and methodological approaches used in the study and is described in three branches: 3.1 Research Method 3.2 Data Source 3.3 Theoretical Framework

Table 12.1. SoTL Taxonomy trees and major branches

dissemination—is also a key aspect of SoTL as demonstrated in our definition; however, it is not included in the SoTL Taxonomy at this time. Our current rationale is that the taxonomy is intended, among other purposes, to provide keywords for publications, thus the taxonomy is intended to *advance* dissemination rather than *categorize* dissemination.

The purpose of a taxonomy is to categorize—in a sense it concurrently expands and reduces a field. Though a taxonomy may seem too reductionist for some readers and too holistic for others, this is the beauty of a taxonomy: it can serve the needs of diverse users once they are familiar with how to use it. Taken as a whole, a taxonomy can be understood as a map of the field.

The Branches of the SoTL Taxonomy

While a discussion of the development of the SoTL Taxonomy is outside the scope of this chapter, below we outline the branches of our evolving SoTL Taxonomy. For readers who are interested in how it was developed, we are in the process of developing a publication describing how the specific trees and branches emerged.

In this section, we outline only the first-level branches of the taxonomy.

Research Focus: *What is the research question?* The first tree of the taxonomy focuses on what is being investigated. This is the teaching and learning problem that has piqued the interest of the SoTL researcher. Within this category, there are seven branches:

1.1 *Pedagogy*. This branch focuses on the type of learning and the learning environment. This branch covers both teaching **and** learning to align with the native language of SoTL. This branch of the taxonomy includes eleven different sub-branches, such as how the material is taught (e.g., Classroom or Seminar), the learning method being investigated (Active Learning, Problem-Based Learning, etc.), conceptual learning issues (e.g., Threshold Concepts), and

Curriculum/Course Design. In general, the focus of this branch is on *how* learning occurs.

1.2 *Assessment*. This branch focuses on research questions that seek to investigate how learning is being measured or assessed, with the understanding that these are the generally accepted (or used) proxies for learning. There are nine sub-branches in this branch: Grading System, Self-Assessment, Peer-Evaluation, Homework, Feedback, Rubric, Portfolio, Exam, and Assessment Models.

1.3 *Learning Tools and Technologies*. This branch focuses on the research questions that seek to understand how specific tools or technologies affect learning in the classroom. It is expected this branch will expand and grow as new technologies are introduced, or old ones are discarded. Currently, this branch has seven sub-branches: Slides/Presentation Tools, Multimedia, Simulation, Virtual Reality, Student Response System, Learning Management System, and Electronic Course Portfolio. We have used generic terms for each of these tools (e.g., Student Response System instead of iClicker) to make the taxonomy more generalizable.

1.4 *Equity in Learning*. While most of the above branches are about learning, this branch focuses on issues that impact learning and aligns with the work of Chng and Looker (2003), who argued that much of non–North American SoTL focuses on issues external to the classroom, as well as the work of Finelli, Borrego, and Rasoulifar's (2015) EER Taxonomy. Here, there are thirteen sub-branches, such as Diversity, Sexual Orientation, Decolonization, as well as the impact of Geopolitical Conflict and Natural Disasters (e.g., the pandemic) on student learning. These are critical societal issues that will impact higher education in the future, and we expect both that they will be the subject of significant SoTL research and that this list will expand.

1.5 *Academic Support*. Within this branch are seven other sub-branches: Mental Health, Physical Health, Mentoring, Tutoring, Academic Advising, Office Hours, and Career Advising. Each of these has been shown to impact student learning (and retention) and has been the subject of SoTL research.

1.6 *Student Success*. There is some SoTL research on factors that impact student success and the view of students as holistic beings rather than only as "learners." Within this branch, we list six sub-branches: Motivation, Engagement, Attendance, Graduation, Retention, and Performance.

1.7 *SoTL Studies*. There is significant research written on studying or philosophizing about SoTL; some is focused on the field, and some is focused on an individual's career or identity. Though this research is not directly focused on learning in the classroom, it does form a significant body of SoTL publication; thus, we have included SoTL Studies as the philosophical/introspective branch in the taxonomy. Within this branch, we include eight sub-branches: Defining SoTL, SoTL Policy, Career Advancement, Institutional Support, Community of Practice, Identity, Epistemology, and Research Quality.

Research Context: *Where is the research taking place?* The second tree focuses on the SoTL researcher's own context for their investigation. As SoTL is multidisciplinary and lives along a spectrum, the context can be narrow or wide. Within this tree, there are five branches:

2.1 *Discipline*. This branch captures the disciplinary information as broadly (e.g., STEM, SoTL) or as narrowly (e.g., Fine Arts, Quantum Physics) as needed to allow others in the discipline to connect with this research. We have not listed all sub-branches here as SoTL can be in any discipline.

2.2 *Learning Level*. This branch captures the learning level as broadly (e.g., K-12, graduate), or as narrowly (certificate, first year) as needed to allow others to understand the transferability of the research to their context.

2.3 *Setting*. This branch focuses on the location of the investigation. It includes six sub-branches: Classroom, Extracurricular, Workshop, Laboratory, Studio, and Formalized Work Experiences. Note that the classroom branch has sub-branches for physical and virtual settings. This helps others understand the transferability of the research to their context or find research that directly represents their own context.

2.4 *Scope of Investigation*. Not all SoTL research takes place in a single classroom. Some larger studies span these sub-branches: Department, Institutional, Regional, National, and Global, or as Fanghanel et al. (2016) describes as, micro, mesa, and macro "levels of practice." Though these studies are much less common than single-classroom or program studies, they are part of SoTL research and usually have different approaches, thus the need to capture this aspect.

2.5 *Population*. Lastly, not all SoTL studies focus directly on students. Thus, this branch includes eight sub-branches: Student, Faculty, Staff, Instructor, Teaching Assistant, Tutor, Mentor, and Academic Advisor. Note that though the subject of the study is not directly the student, the goal is still to understand the impact of this subject on student learning (e.g., the effect of a formal TA training program on student learning).

Research Approach: *How is the question answered?* The third tree focuses on how the research is being conducted and provides the methodological rigour and theoretical foundation for the research, described in three branches. In this tree, theory enters the discipline of SoTL:

3.1 *Research Method*. There is currently an abundance of richness to the approaches taken in SoTL. This branch includes a wide range of methodological approaches, including formalized systematic methods (ranging from positivist to interpretivist) and introspective methods. The introspective methods sub-branch represents the importance placed on reflective practice or what Weimer (2006) calls the *wisdom of practice* within SoTL. Indeed, Poole and Chick (2022) cite introspection as a pillar of SoTL. Systematic methods include Quantitative (Descriptive Statistics, Inferential Statistics, Experimental Research, and Regression), Qualitative (e.g., Case Studies, Content Analysis, Ethnography, Grounded Theory, Narrative Enquiry, Phenomenology, and Phenomenography), Mixed Methods (both Sequential and Concurrent Approaches), Literature Reviews and Classroom Action Research. As an aside, given the focus of some authors on the active partnership with students in SoTL (Felten 2013), a case is sometimes made that all SoTL should be considered classroom action research.

3.2 *Data Source*. This branch focuses on classifying the data used in the SoTL study. This includes eight sub-branches: Surveys, Interviews, Focus Groups, Course Deliverables, Grades, Institutional Feedback Forms, Course Material, and Classroom Observations. Though some of these are often connected to a specific research method, many can and are used across multiple methods (e.g., surveys can be quantitative or qualitative in nature), thus the need to uniquely identify the data source in the taxonomy.

3.3 *Theoretical Framework*. This branch of the taxonomy focuses on connecting SoTL research to an underlying theory. Though this focus on theoretical foundations is relatively new within SoTL research, it is seen as a potential need (Miller-Young and Yeo 2015). A clearly identified (and used) framework helps "define, frame, or ground the focus of

a study" (Magana 2022); thus, this tree helps SoTL researchers frame their research. This branch includes the following sub-branches: Cognitive Theories, Social Cognitive Theories, Affective Theories, Critical Theories, and Developmental Theories.

How a SoTL Taxonomy Helps in Your Journey

Similar to the personal struggles discussed in the introduction, researchers often arrive in the SoTL field with their own well-developed expertise and lexicon. They have mastered their discipline's language. However, as I experienced in my own journey into SoTL, the language of SoTL can be very different: the same words from your disciplinary home and SoTL can have different meanings, or different words can have the same meaning. These competing languages can lead to miscommunication, thus the need to learn to "speak SoTL" (Webb 2019). In this way, the taxonomy provides newcomers (and experts) with a Rosetta stone outlining a common vocabulary of SoTL because it is written in the *native language* of the field.

As well, not only does each researcher arrive with different masteries, but they also arrive with differing gaps in their knowledge when entering the field. STEM researchers may need to develop their qualitative understanding. Humanities researchers may need to develop their empirical methods. A common pathway does not exist. By organizing the field and laying out the language, the newcomer gains an understanding of both what they already know and what they need to learn.

For a clear example of this, compare the writing voices of Matthew A. Fisher (STEM) in chapter 7, with that of Nancy L. Chick (humanities) in chapter 8 of this book. Not only do both these authors discuss their struggle to understand and successfully publish in the "SoTL language," but they also discuss how they have had to adapt their voice to that of SoTL. It is clear that they faced very different challenges in their journeys. Interestingly, in their writing, we can still see the "accent" of their home discipline.

A taxonomy helps put this struggle in perspective. By overtly organizing the breadth, the newcomer (or expert) is no longer faced with abstract, disconnected concepts. This mapping will enable them to see connections. It will allow them to focus their learning on the aspects of SoTL connected to their research interests, to find like-minded researchers to form a community, or to seek out complementary partners to help develop missing skills.

Or, as we will show in the next two sections, the SoTL Taxonomy can help connect SoTL research to earlier work or help identify a SoTL research agenda.

Using a SoTL Taxonomy to Share Your Work

One of the goals of SoTL is to share one's work, but this also means you must also be able to find others' work. Thus, the most overt application of the taxonomy is using it to generate keywords for journal publications. Though SoTL journals do provide some guidance on the use of keywords, rarely do they provide comprehensive restrictions or defined words that must be used (for example, *Teaching & Learning Inquiry* only provides guidance on the number of keywords). This can lead to inconsistent descriptions (i.e., using different words to mean the same thing), vague descriptions (i.e., using overly broad keywords), and incomplete descriptions (i.e., failing to use keywords for an aspect of the study).

When sharing SoTL work, we suggest that using the taxonomy to guide keyword selection by choosing at least one keyword from each tree normalizes the description of SoTL research in a consistent manner with a uniform level of detail. This will ensure searchability and visibility so SoTL researchers can find, connect, and disseminate their work and the work of others in the field (Finelli, Borrego, and Rasoulifar 2015).

Using a SoTL Taxonomy to Build on Earlier Work

When searching for SoTL work, the problem of finding relevant research is more complex for two reasons: the interdisciplinary nature of the field and the fact that SoTL research is often conducted in a local context (e.g., a specific classroom, teaching

modality, etc.). Thus, one is unlikely to find existing research in your context, and instead, you must find research done in other contexts and determine if it is applicable.

Essentially, SoTL research usually produces transferable results rather than generalizable results (Friberg 2018). Matthew Fisher discusses the challenges of transferability vs. generalizability in detail in chapter 7. It is an innate struggle for some scholars coming to SoTL, and the challenges Matthew faced provide some insight into the nature and origin of this struggle. However, though this preference for transferability over generalizability is not true for all SoTL research, it is common and arises from two inherent aspects of SoTL research. First, SoTL studies are often qualitative in nature, where transferability is usually the more accepted goal (Lincoln and Guba 2006; Carminati 2018). Second, many SoTL studies (even quantitative) focus on limited data (e.g., a single classroom), thus the ability to produce generalizable results is limited, and the importance of the results lies in the analysis in that context. However, there are also SoTL scholars working on large, formalized studies that do seek generalizable results, and others are encouraging generalizable approaches (see Miller-Young and Yeo (2015) for an excellent review of this debate). Thus, while SoTL studies do tend to focus on transferability, SoTL is a big tent that accepts and encourages many approaches in many contexts.

By emphasizing transferability, the responsibility of applying the research findings falls on the reader. The SoTL researcher presents their findings in their own context (e.g., the impact of spaced practice on first-year physics exam results). Then the reader decides whether these findings can be applied to their own context, which could be vastly different (e.g., a fine arts studio class). Thus, when seeking applicable SoTL research, the field and context (*where*) may differ significantly, but the research topics (*what*) may still hold relevance. So while generating keywords for your own research, we recommend selecting at least one keyword from each tree. When searching for others' research you may need to determine

which trees (and keywords) are most relevant so that you can transfer the research to your context.

For both these issues, a clear language ensures SoTL researchers can share their findings and find others' work more effectively. That is, by using a *controlled vocabulary*, SoTL researchers' work is categorized and thus more consistently searchable.

Using a SoTL Taxonomy to Develop Your Research Agenda

Perraton (2000), in discussing a new research agenda for education, stated that "unless research is grounded in theory, it cannot be much more than data gathering" (1). However, it can be difficult for new SoTL researchers to be aware of or understand the breadth of theories that can support a SoTL project. The concrete nature of the taxonomy can help SoTL researchers. First, it makes it overt how theory can be connected to a SoTL project; the *Research Context* tree includes a branch describing the theoretical framework. Not only does this remind the SoTL researcher to frame their project in a theoretical context, but the sub-branches lay out potential theoretical frameworks to do this. This includes basing research on an appropriate theoretical foundation, such as education (e.g., constructivism), critical theory (e.g., intersectionality), etc.

In addition, the *Research Focus* tree provides further examples on how these potentially abstract theories (e.g., threshold concepts, active learning, etc.) may be implemented in the classroom. The importance of the taxonomy is not to define or limit a SoTL research study, but to ensure that the SoTL study considers the theory behind the study. For a new (or experienced) SoTL researcher, this can be an essential, often unconsidered, step.

Lastly, as the SoTL researcher integrates theory into their approach, the taxonomy can help reveal new research inquiries. Like all researchers, we often look for gaps in our understanding. Within SoTL, the gap lies not only in a theoretical understanding of how learning works but also in a practical understanding. Can we transfer the results of other studies to our context? In some cases, this may be obvious (from one STEM course to another), but in other cases (recall the first-year physics introductory class to a

capstone fine arts project course), it may require additional study. Thus, by considering the theory, as opposed to only our context, we open the breadth of potential research inquiries available to us.

Perraton (2000) advised that a research agenda should be "seen as something grounded in theory that can lead to improved practice" (1). Given that improved practice is the goal of SoTL, the taxonomy helps by overtly revealing theoretical frameworks or identifying appropriate methodologies that can be used to transform an initial pedagogical curiosity or informal research question into a fully-fledged research agenda.

Note that though we have framed this use of a taxonomy as a personal research agenda, many authors in this book have discussed the importance of community in developing as a SoTL scholar. A taxonomy can help here as well; for example, it may help provide a roadmap to guide journal clubs. Here, the taxonomy addresses one of the issues discussed by Suart, Ogrodnik, and Suttie in chapter 5—how to find literature to learn the landscape of SoTL. The taxonomy directly addresses this issue by providing keywords, laying out the breadth of the field, and acting as a learning map.

Final Thoughts: The Benefits of a SoTL Taxonomy

In this chapter we presented a SoTL Taxonomy and discussed how it can help navigate three specific challenges in SoTL: gaining an understanding of the SoTL field, finding and linking SoTL research, and developing a research agenda. In addition, the diversity of disciplines involved in SoTL can create epistemological challenges for newcomers and experts alike as they must master new ways of knowing as well as new skills.

The taxonomy does not directly provide the coordinates but rather helps us map these challenges. Learning to become a SoTL scholar is a rewarding endeavour, but as Kelly, Nesbit, and Oliver (2012) stated, mastery of this field "demands an immersion in a different intellectual language and culture, experiential learning, personal reflection and an iterative process of moving backwards and forwards between the familiar . . . and a different way of

thinking. Above all, it demands time" (4). A taxonomy provides a tool to help develop SoTL research: the standardized language and classification provides consistency across studies that, along with the mapping of the field, makes it easier to position and connect one's research to the existing body of knowledge, as well as identify potential gaps in the existing literature. A taxonomy also enables researchers to broaden their interests by learning about different (but related) terms and to potentially refine their research methodologies by identifying new and, perhaps, more suitable ones for the types of questions they ask. With this knowledge at hand, SoTL scholars can move their research forward with more strategic thinking by developing a research agenda. It will help increase the significance of their advancements by making their contributions to the literature more visible and impactful.

In the end, perhaps the most important contribution of the SoTL Taxonomy is the recognition and celebration of the breadth and depth of SoTL, and its impact on our understanding of and advancement of teaching and learning across diverse contexts. The SoTL Taxonomy is the *big tent* made visible. We offer it as a celebration of all that SoTL has done and can do.

Reflection Questions

- Throughout this book, many of the chapter questions ask about the difficulties you've encountered in your journey to becoming a SoTL scholar. How might a SoTL taxonomy help you address these difficulties?
- Choose a favorite SoTL article, one that you or another person has written, and conceptualize it through the taxonomy, assigning at least one keyword from each branch. Next, using the taxonomy, investigate how you could change or continue to develop this research by, for example, choosing a different research method, a different context, or a different focus. How would this help you advance your research agenda?

- Having applied the taxonomy, how might you revise or adapt it?

References

Boyer, Ernest L. 1990. *Scholarship Reconsidered: Priorities of the Professoriate*. Menlo Park, CA: Carnegie Foundation for the Advancement of Teaching.

Carminati, Lara. 2018. "Generalizability in Qualitative Research: A Tale of Two Traditions." *Qualitative Health Research* 28 (13): 2094–101. https://doi.org/10.1177/1049732318788379.

Chng, Huang Hoon, and Peter Looker. 2013. "On the Margins of SoTL Discourse: An Asian Perspective." *Teaching & Learning Inquiry* 1 (1): 131–145. https://doi.org/10.20343/teachlearninqu.1.1.131.

Fanghanel, Joëlle, Jane Pritchard, Jacqueline Potter, and Gina Wisker. 2016. *Defining and Supporting the Scholarship of Teaching and Learning (SoTL): A Sector-Wide Study: Literature Review.* Higher Education Academy.

Felten, Peter. 2013. "Principles of Good Practice in SoTL." *Teaching & Learning Inquiry* 1 (1): 121–25. https://doi.org/10.20343/teachlearninqu.1.1.121.

Finelli, Cynthia J., Maura Borrego, and Golnoosh Rasoulifar. 2015. "Development of a Taxonomy of Keywords for Engineering Education Research." *Journal of Engineering Education*. 104 (4): 365–87. https://doi.org/10.1002/jee.20101.

Friberg, Jennifer. 2018. "SoTL, ER, and DBER: Thoughts Inspired by a Twitter Conversation." *The SoTL Advocate*, November 27, 2018. Illinois State University. https://illinoisstateuniversitysotl.wordpress.com/2018/11/27/sotl-er-and-dber-thoughts-inspired-by-a-twitter-conversation/.

Hedden, Heather. 2010. *The Accidental Taxonomist*. Medford, NJ: Information Today.

How, Zhan Jie. 2020. "A Systematic Review of Scholarship of Teaching and Learning Research in Higher Education Institutes from 2014–2019." In *Transforming Teaching and Learning*

in Higher Education, edited by Seng C. Tan and Shen-Hsing A. Chen. Singapore: Springer Singapore.

Hutchings, Pat, ed. 2000. *Opening Lines: Approaches to the Scholarship of Teaching and Learning*. The Carnagie Foundation for the Advancement of Teaching.

Kelly, Niamh, Susan Nesbit, and Carolyn Oliver. 2012. "A Difficult Journey: Transitioning from STEM to SoTL." *International Journal for the Scholarship of Teaching and Learning* 6 (1). https://doi.org/10.20429/ijsotl.2012.060118.

Levy, T. 2004. "Standard Taxonomies Offer Flexibility." *Seybold Report: Analyzing Publishing Technologies* 4 (8): 9–11.

Lincoln, Yvonna S., and Egon G. Guba. 2006. *Naturalistic Inquiry*. [Nachdr.]. Newbury Park: Sage Publ.

Magana, Alejandra J. 2022. "The Role of Frameworks in Engineering Education Research." *Journal of Engineering Education* 111 (1): 9–13. https://doi.org/10.1002/jee.20443.

Miller-Young, Janice, and Michelle Yeo. 2015. "Conceptualizing and Communicating SoTL: A Framework for the Field." *Teaching & Learning Inquiry* 3 (2): 37–53. https://doi.org/10.20343/teachlearninqu.3.2.37.

Miller-Young, Janice, Michelle Yeo, and Karen Manarin. 2018. "Challenges to Disciplinary Knowing and Identity: Experiences of Scholars in a SoTL Development Program." *International Journal for the Scholarship of Teaching and Learning* 12 (1). https://doi.org/10.20429/ijsotl.2018.120103.

Perraton, Hilary. 2000. "Rethinking the Research Agenda." *IRRODL* 1 (1). https://doi.org/10.19173/irrodl.v1i1.5.

Poole, Gary. 2013. "Square One: What Is Research?" In *The Scholarship of Teaching and Learning in and Across Disciplines*, edited by Kathleen McKinney, 135–51. Bloomington, Indiana: Indiana University Press.

Poole, Gary, and Nancy Chick. 2022. "Great Introspections: How and Why SoTL Looks Inward." *Teaching & Learning Inquiry* 10. https://doi.org/10.20343/teachlearninqu.10.18.

Potter, Michael K., and Jessica Raffoul. 2023. "Engaged Alienation: SoTL, Inclusivity, and the Problem of Integrity." *International Journal for the Scholarship of Teaching and Learning* 17 (1): 1–6. https://doi.org/10.20429/ijsotl.2023.17102.

Webb, Andrea S. 2019. "Navigating the Lows to Gain New Heights: Constraints to SoTL Engagement." *The Canadian Journal for the Scholarship of Teaching and Learning* 10 (2). https://doi.org/10.5206/cjsotl-rcacea.2019.2.8173.

Weimer, Maryellen. 2006. *Enhancing Scholarly Work on Teaching and Learning: Professional Literature That Makes a Difference*. Hoboken, New Jersey: John Wiley & Sons.