DEVELOPING A SCHOLARLY APPROACH AND CONTRIBUTING TO CONVERSATIONS ABOUT TEACHING AND LEARNING

By Mirjam S. Glessmer, Kjersti Daae, Oddfrid Førland, and Robert Kordts

If you are a teacher in higher education, you are probably focused on student learning and committed to improving your teaching. Here, we introduce you to the Scholarship of Teaching and Learning (SoTL), the "inquiry into teaching and learning for the purposes of improving [it] in context and contributing to what we know about [it], in support of the broader aims of higher education" (Chick et al., 2025, p. 2), with the goal of improving student learning. SoTL can help you to develop and find your voice as a teacher (Healey et al., 2019) and create evidence of your pedagogical competence (Olsson et al., 2010) through documenting and evaluating what you learn while teaching. SoTL can be hugely rewarding and can even be seen as an act of self-care (Tasler, 2025).

SoTL practice begins with engaging in the conversations about teaching and learning happening all around you: among your students and colleagues, on social media, in publications, and in other outlets. According to Felten (2013), good SoTL fulfills the following criteria. First, it focuses on student learning. This aspect concerns developing disciplinary knowledge and skills, as well as attitudes and behaviors, or examining how teachers influence these aspects. SoTL may also involve offering suggestions for improving dialogues with students and shaping conditions that support student success at the program level or beyond. Second, good SoTL involves partnership with students. Students can be involved in parts of or the entire SoTL process, helping to define research questions, selecting methods, gathering data, or interpreting and sharing results. Third, good SoTL is grounded in context, which means considering the who, when, and where during the design of your study, as well as when sharing your results. Fourth, good SoTL uses sound methodology. Ensuring that your SoTL is methodologically sound means that your chosen methods are applied with intention and rigor as a reflective, evidence-based, and systematic practice. Finally, good SoTL is shared and discussed with others. Although many undertake SoTL for their own development as teachers and care for student learning, sharing SoTL work is important so that it can be utilized and adapted by others in their own contexts, as well as critiqued and further developed. You can go public in a variety of possible formats (see suggestions in section 6). Before going public, engage with the ongoing conversation about teaching and learning in various media to understand the bigger picture and to see where your own contribution might fit in,

Below, we suggest a workflow for conducting a SoTL study and selecting a meaningful format for going public (Figure 1). If you find SoTL overwhelming, please keep in mind that SoTL is a continuous practice that has many entry points. As indicated in Figure 1, you may also need to cycle back and forth between the different steps a few times until you have a clear idea of what to study, what data you need, and how you can support your study with theory.

1. WHAT QUESTION, THEME, OR PROBLEM IN YOUR TEACHING ARE YOU CURIOUS ABOUT?

The main idea of SoTL is to investigate a question, theme, or problem regarding your teaching that interests you. These can concern what does or does not work in your teaching and why; description and evaluation of existing methods and practices; or investigations of possible alternatives (Hutchings, 2000). Good SoTL questions that typically arise from a troubling, surprising, or perplexing situation have the potential to lead to broader insights into student learning (Ciccone, 2023).

One helpful way to think about your SoTL project is that it will produce "ripple effects" (Chick et al., 2025, p. 16): SoTL might start from your individual motivation to improve your teaching or build your publication record, but it will impact your students, your institutions, and the profession, and might even contribute to public good. And of course, you might be motivated by all of those.

2. WHAT DO OTHERS THINK ABOUT YOUR QUESTION, THEME, OR PROBLEM?

Once you have identified a theme, question, or problem, it is beneficial to gather as much information as possible about the topic, both to understand if you are asking the right question and to start working on ways to find answers.

TALK WITH YOUR STUDENTS AND OTHER TEACHERS. Talking to your students can be a helpful first step in developing your project. If you, for example, have concerns about their engagement, they may provide information that helps you better understand the issue. You can ask your students in class or in anonymous online formats that may also reach absent students.

Discussing with colleagues in your department and connecting with teachers in your network (e.g., those who teach similar courses at other departments) helps you learn from their experiences and perspectives. Perhaps your colleagues can also point to relevant resources or even volunteer to join your investigation or act as supportive and constructive "critical friends" (Handal, 1999).

EXPLORE PUBLICATIONS OF ALL KINDS. A scholarly approach to teaching and learning involves consulting literature, such as pedagogical studies and publications. You might find examples of how other educators have taught or assessed similar learning outcomes or evidence supporting the effectiveness of certain teaching methods you can adopt. Searching for literature on teaching is similar to searching for literature in other disciplines. When a literature search does not come up with any useful results, it might be worth varying the search terms or adding keywords like "higher education" or "university teaching." A lot of SoTL is also published in other formats, so it can be very useful to routinely "listen in on the conversation" held via podcasts, blogs, and conferences, and to broadly explore the gray literature and SoTL journals (see examples in Figure 2) as well as to search in languages other than English if possible.

3. WHAT CAN YOU DO TO ANSWER YOUR QUESTION?

To find answers to SoTL questions that you could publish, you need to choose a framework and method for the investigation. You also need to consider legal and ethical requirements well before potentially collecting data.

CHOOSE A FRAMEWORK FOR YOUR STUDY. Finding a suitable conceptual or theoretical framework for your study can help you structure your study, better understand your question, and provide theoretical context. Typical frameworks used in SoTL

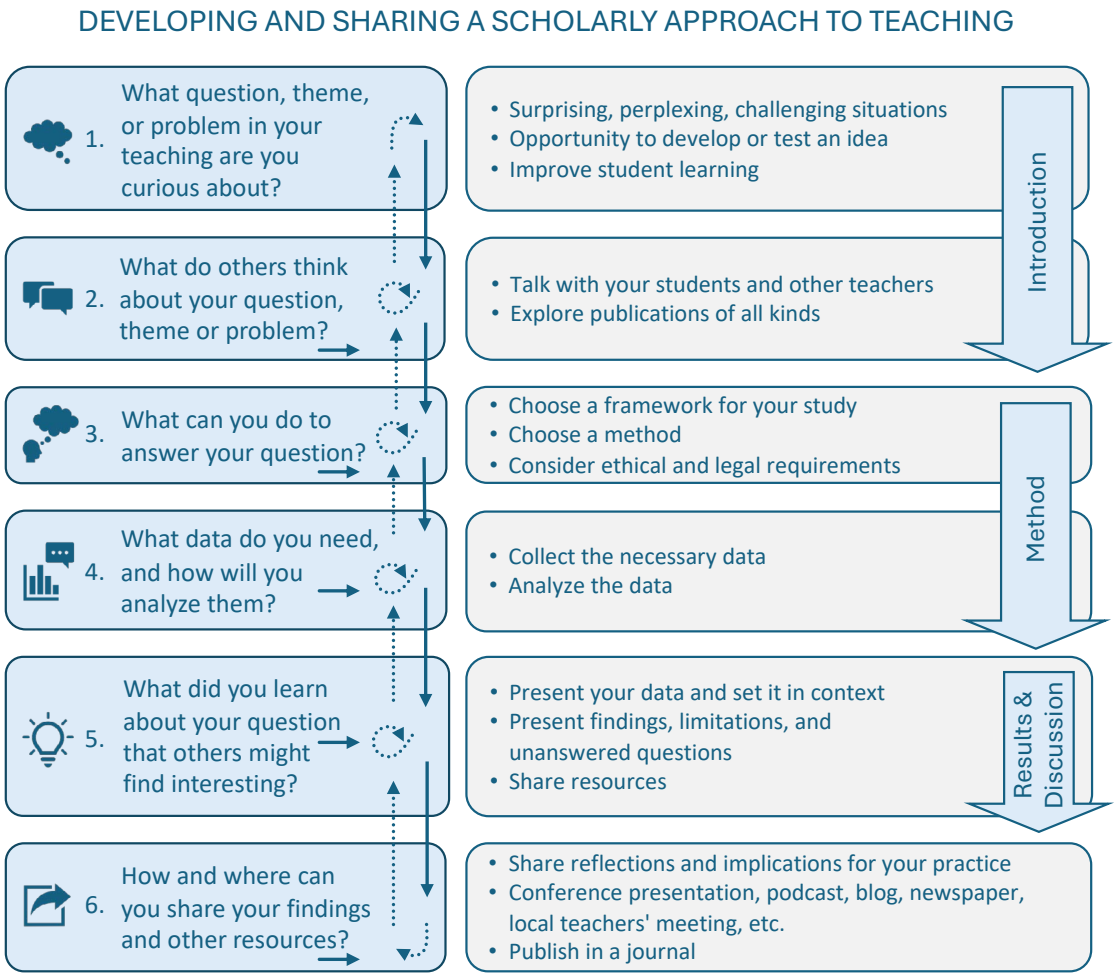

FIGURE 1. Suggested simplified workflow for developing and sharing a scholarly approach to teaching and learning, known as Scholarship of Teaching and Learning (SoTL). Arrows indicate possible entry points and highlight the need to repeatedly loop back to earlier steps before reaching the publication stage.

FIGURE 2. Some examples of where inspiration can be found by teachers for SoTL work, and where it can be shared. Examples are clustered in a simplified SoTL staircase, inspired by Beckingham (2025), with links that lead to resources.

include learning theories (e.g., experiential learning [Kolb, 1984] or threshold concepts [Meyer and Land, 2006]), motivation or engagement frameworks (e.g., Self-Determination Theory [Deci and Ryan, 2000] or Communities of Practice [Wenger, 1998]), and pedagogical frameworks (e.g., constructive alignment [Biggs, 1996], or Universal Design for Learning [e.g., CAST, 2024]). To identify the most appropriate framework, you can draw inspiration from similar studies in the literature or consult someone more experienced in SoTL or an institutional Center for Teaching and Learning, if available.

CHOOSE A METHOD FOR YOUR STUDY. A good way to approach the question of which methods to choose is to reflect on your own disciplinary research. Do you typically focus on general scientific principles, or are you more interested in specific cases where you go in depth by using different types of research methods? You could design your study building on your typical methodological approach or explore and try out new methods (e.g., Bohndick et al., 2025).

A common distinction is between quantitative and qualitative methods (McKinney, 2007; Bishop-Clark and Dietz-Uhler, 2012). While quantitative methods offer the advantage of mathematical and statistical analysis, they require large sample sizes. Qualitative methods, on the other hand, can be effectively used with smaller datasets but may yield less generalizable conclusions. To mitigate the limitations of both approaches, you can also combine them within a single project. If you are interested in doing this, keep in mind the additional effort and workload required to analyze the data.

CONSIDER ETHICAL AND LEGAL REQUIREMENTS. SoTL typically means that you, as the teacher, are investigating your own teaching practice. This might introduce biases and raise ethical and legal questions. It is crucial to ensure that your study or expected outcomes do not harm or disadvantage any of your students. This requires a careful reflection of your multiple roles and the power relations between you and your students. For instance, how can you make sure to be open about potential biases that you might have toward a specific hypothesis when you investigate your

teaching? How can you guarantee treating the students' exam performances in a fair and valid manner when you depend on them for your SoTL project? These and similar questions are highly relevant for your SoTL work, both for access to data and the quality of your project and of your teaching in general. Similarly, it is important to make sure that students know that participation in your study is voluntary. To reassure yourself and your students that your project will not interfere with their studies, consider collecting data anonymously or keep the project separate from assessment in your teaching—or collaborate with a colleague who can handle non-anonymous data.

Many institutions and countries have ethical review boards that must approve studies before data collection, and privacy laws governing the storage and use of personal and sensitive data vary significantly across contexts. Consider the ethical and legal requirements in your context to ensure your planned work complies with local regulations. This might mean that you must loop back to earlier considerations about, for example, methods.

4. WHAT DATA DO YOU NEED, AND HOW WILL YOU ANALYZE THEM?

What data you need depends on whether your question can be answered based on observable behaviors, direct reports of experience, artifacts demonstrating learning or opinions, or something else. In some cases, the type of data you need to answer your question might follow directly from your chosen framework, because it is already associated with established surveys or methods.

COLLECT THE NECESSARY DATA. Collecting data does not necessarily mean that you have to generate new data. In many cases, SoTL questions can be answered through the analysis of existing data, such as grades or course completion data, student-produced traces of learning in learning management platforms, or current and historical documents with information about learning objectives and course structures. Find out which data exist at your institution, and which data you have the right to use; there might be a lot more than you expect.

If you choose to collect new data (for possible methods and instruments, refer to **Box 1**), review what software your institution provides for collecting different types of data. There may be software available for survey data or for recording and transcribing voice-based interview data. Getting good response rates for online surveys can be hard, but conducting the surveys during class can help boost response rates. Sometimes it is also helpful to collect short handwritten answers on paper during class, but this may not be feasible for larger student groups. You can even collect data on teaching that is already completed using hindsight surveys.

ANALYZE THE DATA. To ensure you will have all the necessary data, you should consider how you want to analyze the data early on. Quantitative and qualitative data typically require very different analytical approaches, so review the relevant literature that describes your chosen method. However, the general approach involves looking for emerging patterns that can help answer your inquiry (or raise new questions) and provide insights

BOX 1. EXAMPLE SoTL METHODS AND INSTRUMENTS

CLASSROOM OBSERVATIONS

In-classroom observations (that, despite their name, can happen outside of the classroom, too) allow exploration of how learning works by observing student behavior (Cerbin, 2023): How do students explain a concept or solve a problem? What misconceptions do they have? How do they interact with each other and the materials in ways that help or hinder their learning? Successful observations of teaching situations are usually based on focal questions or observation protocols and use one or several prepared observers.

- Nyarko and Petcovic (2023) use an **observation protocol** to investigate how teamworking skills develop and are used during a field course.
- Ballen et al. (2017) employ **classroom observation** of student participation in biology to find out which students (based on characteristics like gender) participate in class and how they participate (e.g., spontaneous, answering questions).
- Cotner et al. (2017) map teaching practices using the **Classroom Observation Protocol for Undergraduate STEM** (COPUS) to collect information about how teachers construct class time and how students respond.

Observations of student learning can also be made in situations that are specifically designed for the purpose, for example, in student **think-alouds** (Calder, 2023).

- Zeng and Rips (2025) use **think-aloud protocols** to investigate problem-solving strategies in physics.

Other measures of student behaviors that can be connected to their learning are, for example, frequency and quality of posts in discussions, hours spent active on a Learning Management System, and office visits.

- Robnett et al. (2022) investigate **lecture transcripts and chat protocols** to determine how and which students use the chat in online teaching.

BOX CONTINUES ON NEXT PAGE...

BOX 1. EXAMPLE SoTL METHODS AND INSTRUMENTS

...CONTINUED FROM PREVIOUS PAGE

REPORTS OF STUDENT EXPERIENCES

Students are not always the best judges of their own learning or of what helped or hindered learning (Deslauriers et al., 2019), but they can report on how they experienced learning situations or materials. Asking students about their experiences directly (i.e., conducting **interviews**) is a powerful way to gain a deeper understanding (Miller-Young, 2023). Interviews can be open conversations, or they can be structured through pre-planned questions that the interviewer asks.

- Kordts et al. (2025a) conduct **repeated semi-structured interviews, using both planned questions and spontaneous follow-up questions** in reaction to student responses. They interview students in a geoscience course to investigate student experiences and perceptions of active learning.

Whereas it is usually impossible to talk to all students taking a class through interviews, a **Teaching Analysis Poll** can facilitate collecting experiences from and discussing them with all students, using a trained facilitator.

- Kordts et al. (2025b) use **Teaching Analysis Polls** to explore student perceptions and feedback to instructors (and they also describe the TAP method in detail).

Quantitative and qualitative student data can also be collected through anonymous teacher-developed **surveys**.

- Daae et al. (2023) use **surveys of student experiences and perceptions** of a near-peer learning experience.
- Bruno et al. (2020) employ **surveys of self-assessment and compare with advisor assessment.**

Surveys can even be used to investigate teaching that has happened in the past (“**hindsight surveys**”). To quantitatively assess specific facets of student experience, for example, student test anxiety or sense of belonging, you can use **questionnaires that are published and validated** by others. These are typically of high quality, but keep in mind that they might still have to be adapted to context (e.g., translated to a different language, or made relevant to local context, at which point the new versions may no longer be valid).

- Hammarlund et al. (2025) explore student sense of belonging using an **established questionnaire.**
- Costello et al. (2025) use an **established questionnaire and free-text responses** to investigate students’ test anxiety.

ARTIFACTS

Student work can be a great indicator of learning, and looking at different versions of the same product can provide insights into the learning process. This can be accomplished by examining samples of students’ regular course work (e.g., lab notebooks, essays, exams, homework, responses to multiple-choice questions) or analyzing quantitative data like admission numbers, retention rates, and exam scores.

Exams are already designed to measure student achievement of learning goals, so they are a great resource for SoTL work.

- Bruno et al. (2017) look at **scores of two-stage exams** and find that collaborative learning happens in the group stage.

Pre-/post tests measure learning on a specific topic in a specific teaching unit.

- Mackin et al. (2012) look at **pre and post-tests** of learning with rotational tank experiments (and they share all the tools here).
- Glessmer and De Wet (2018) use **pre and post-tests** of understanding of rotational vs. inert frames of reference.

Student knowledge can be assessed, and often compared to studies in other contexts, using **concept inventories**.

- Arthurs et al. (2015) share an **oceanography concept inventory.**

Development of student thinking can be investigated by comparing their reflections over time.

- Darcie et al. (2024) analyze **student reflection journals** to investigate students’ study strategies and changes in thinking.

Very short written reports of student experiences, such as their summaries of key points, can be collected using **minute papers**.

- Lévy and Glessmer (2025) ask students for **short written feedback** about their perception of a course and their most important take-aways.

A specific form of a minute paper is a “**muddiest point**,” asking about what is most unclear at the end of a session.

- Swanson (2024) reports on how other teachers have used “**muddiest point**” feedback to understand student difficulties with content and inform future instruction.

Student feedback data can also be very useful as SoTL data, for example, the “**Stop. Start. Continue.**”

- Hoon et al. (2015) suggest the “**Stop. Start. Continue.**” method to collect constructive student feedback on teaching and to document pedagogical development.

Different types of student work can also be used in **combination** with other methods:

- Møller et al. (2023) combine analysis of **student work** (reflection notes, reflection tasks) and **focus group interviews** to investigate how students respond to new content and teaching practices, and how this influences student motivation (student work was collected for the study while teaching, but only looked at later for the study so as to not interfere with grading).

In addition to student work, other artifacts that could be used in SoTL investigations include **teaching and learning literature, course plans,** or **policy documents**.

into your teaching and your students' learning. Please note that the use of Large Language Models for qualitative data analysis is not scientifically sound (Glessmer and Forsyth, 2025; Nguyen and Welch, 2025).

5. WHAT DID YOU LEARN ABOUT YOUR QUESTION THAT OTHERS MIGHT FIND INTERESTING?

In order for others to be able to learn from your study, you first need to objectively present the data and findings without interpretation. Next, you explain what those findings mean, how they relate to existing research, why they matter, and what the limitations are.

PRESENT YOUR DATA AND SET IT IN CONTEXT. Extract the pieces of data and accompanying analysis that provide an answer to your specific question. Report and describe all the data you have collected: both what was expected and what was surprising. What might seem obvious to you might not be obvious to others.

Describe your context in detail so that colleagues can recognize similarities to and differences from their contexts. This includes where (e.g., country, type of institution, discipline, degree level), when (e.g., on early Monday mornings, at the beginning or end of a course), for whom (e.g., the whole student population, students with a special interest, first-generation academics, minority students), and other aspects.

PRESENT FINDINGS, LIMITATIONS, AND UNANSWERED QUESTIONS. Now it is time to present the answers you found. However, be careful not to oversell them as more general than they really are. Most likely, you end up with more questions than you had when you began (and that's fine!). Your reflections on these questions could be important to share. They offer a valuable contribution to the ongoing conversation on teaching and learning development, and they support your growth as a teacher.

SHARE RESOURCES. Keep in mind that your study concerns both a process and a product (outcome), both of which may be useful for others. It is a bonus if you can share supplemental resources (e.g., teaching materials, survey questions) so others do not need to start from scratch.

6. HOW AND WHERE CAN YOU SHARE YOUR FINDINGS AND OTHER RESOURCES?

Going "appropriately public" (Felten, 2013) with your SoTL work can take many forms, and there is a continuum of possibilities and formats for sharing SoTL (Beckingham, 2025; recent work of author Førland and colleagues). These range from local, informal conversations with colleagues to presentations at (teaching-focused) meetings and conferences and in blog posts and social media to written publications, such as conference proceedings, articles, or book chapters. One recommendation for going public is to start small, local, and oral, and then move toward written and (inter)national outlets. If there is no local conversation or arena where you can share SoTL work in your context, you could take the initiative to start one. Look at which podcasts talk about teaching in a way that resonates with you, at what conferences you got useful insights regarding your teaching, or which blog posts inspired you. Consider these and similar outlets for your own work (see Figure 2).

FORWARD, BACKWARD, ONWARD!

SoTL is a continuous, inquiry-based practice, not a one-off project that you conduct, publish, and then set aside. Sometimes teaching development works out well on the first attempt, but it is more likely that you need more attempts to fine-tune and try again. Perhaps you may need to ask different survey questions to ensure you have the right type of data to answer your question. Although we present SoTL as a linear process in this article, reality is never that simple (see the arrows in Figure 1). Please reflect on your practice and continue to do the SoTL that will benefit you, your students, your colleagues, and the wider community. We look forward to connecting with you and learning about your SoTL work!

REFERENCES

Arthurs, L., J.F. Hsia, and W. Schweinle. 2015. The oceanography concept inventory: A semi-customizable assessment for measuring student understanding of oceanography. *Journal of Geoscience Education* 63(4):310–322, https://doi.org/10.5408/14-061.1.

Ballen, C.J., M. Danielsen, C. Jørgensen, J.-A. Grytnes, and S. Cotner. 2017. Norway's gender gap: Classroom participation in undergraduate introductory science. *Nordic Journal of STEM Education* 1(1):262–270, https://doi.org/10.5324/njsteme.v1i1.2325.

Beckingham, S. 2025. SoTL staircase. National Teaching Repository. Figure, https://doi.org/10.25416/NTR.29438096.v1.

Biggs, J. 1996. Enhancing teaching through constructive alignment. *Higher Education* 32(3):347–364, https://doi.org/10.1007/BF00138871.

Bishop-Clark, C., and B. Dietz-Uhler. 2012. *Engaging in the Scholarship of Teaching and Learning. A Guide to the Process, and How to Develop a Project from Start to Finish*. Stylus Publishing, 160 pp.

Bohndick, C., R. Kordts, J. Leschke, and N. Vöing, eds. 2025. *Scholarship of Teaching and Learning und disziplinäre Forschung: Eine komplexe Beziehung* [Disciplinary research and the Scholarship of Teaching and Learning: A Complex Relationship]. Part of Springer series Doing Higher Education, 253 pp., https://doi.org/10.1007/978-3-658-47908-4.

Bruno, B.C., J. Engels, G. Ito, J. Gillis-Davis, H. Dulai, G. Carter, C. Fletcher, and D. Böttjer-Wilson. 2017. Two-stage exams: A powerful tool for reducing the achievement gap in undergraduate oceanography and geology classes. *Oceanography* 30(2):198–208, https://doi.org/10.5670/oceanog.2017.241.

Bruno, B.C., C. Heu, and G. Weyenberg. 2020. How do advisor assessments of diverse undergraduate researchers compare with the students' self-assessments? And what does this imply for how we train and assess students? *Oceanography* 33(2):134–143, https://doi.org/10.5670/oceanog.2020.210.

Calder, L. 2023. Student think-alouds: Making thinking and learning visible. Chapter 12 in *SoTL in Action: Illuminating Critical Moments of Practice*. N.L. Chick, ed., Taylor & Francis, https://doi.org/10.4324/9781003447047-15.

CAST. 2024. *The UDL Guidelines version 3.0*, https://udlguidelines.cast.org.

Cerbin, B. 2023. Classroom observations: Exploring how learning works. Chapter 9 in *SoTL in Action: Illuminating Critical Moments of Practice*. N.L. Chick, ed., Taylor & Francis, https://doi.org/10.4324/9781003447047-12.

Chick, N., P. Felten, and K. Mårtensson. 2025. *The SoTL Guide: (Re)Orienting the Scholarship of Teaching and Learning*. Elon University's CEL Press, https://doi.org/10.36284/celelon.oa10

Ciccone, A. 2023. Learning matters: Asking meaningful questions. Chapter 2 in *SoTL in Action: Illuminating Critical Moments of Practice*. N.L. Chick, ed., Taylor & Francis, https://doi.org/10.4324/9781003447047-4.

Costello, R.A., S.P. Hammarlund, E.M. Christiansen, M.K. Kiani, M.S. Glessmer, S. Cotner, and C.J. Ballen. 2025. STEM students prefer assessment practices known to reduce the impact of test anxiety. *Nordic Journal of STEM Education* 9(1):43–65, https://doi.org/10.5324/njsteme.v9i1.5892.

Cotner, S., L.M. Jeno, and C. Ballen. 2017. Strategies to document active learning practices in biology. MNT-konferansen, March 30–31, 2017, Oslo, Norway, https://bioceed.uib.no/dropfolder/bioCEED/MNT2017-Cotner.pdf.
Daae, K., A.D. Årvik, E. Darelius, and M.S. Glessmer. 2023. Student guides: Supporting learning from laboratory experiments through across-course collaboration. *Nordic Journal of STEM Education* 7(1):98–105, https://doi.org/10.5324/njsteme.v7i1.5093.
Darcie, I., R. Gray, and M. Vander Kloet. 2024. Sustaining critical minds: How classroom learning cultures shape student thinking dispositions and practices. *Active Learning in Higher Education* 26(3), https://doi.org/10.1177/14697874241303508.
Deci, E.L., and R.M. Ryan. 2000. The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry* 11(4):227–268, https://doi.org/10.1207/S15327965PLI1104_01.
Deslauriers, L., L.S. McCarty, K. Miller, K. Callaghan, and G. Kestin. 2019. Measuring actual learning versus feeling of learning in response to being actively engaged in the classroom. *Proceedings of the National Academy of Sciences of the United States of America* 116(39):19,251–19,257, https://doi.org/10.1073/pnas.1821936116.
Felten, P. 2013. Principles of good practice in SoTL. *Teaching and Learning Inquiry* 1(1):121–125, https://doi.org/10.20343/teachlearninqu.1.1.121.
Glessmer, M.S., and P.D. De Wet. 2018. Supporting conceptual understanding of the Coriolis force through laboratory experiments. *Current: The Journal of Marine Education* 31(2):25–33, https://doi.org/10.5334/cjme.5.
Glessmer, M.S., and R. Forsyth. 2025. Superficially plausible outputs from a black box: Problematising GenAI tools for analysing qualitative SoTL data. *Teaching & Learning Inquiry* 13:1–9, https://doi.org/10.20343/teachlearninqu.13.4.
Hammarlund, S.P., E.M. Christiansen, M.K. Kiani, M.S. Glessmer, S. Cotner, and R.A. Costello. 2025. Understanding student sense of belonging in introductory STEM courses. *Nordic Journal of STEM Education* 9(3):61–81, https://doi.org/10.5324/njsteme.v9i3.6309.
Handal, G. 1999. Consultation using critical friends. *New Directions for Teaching and Learning* 1999(79):59–70, https://doi.org/10.1002/tl.7907.
Healey, M., K.E. Matthews, and A. Cook-Sather. 2019. Writing scholarship of teaching and learning articles for peer-reviewed journals. *Teaching & Learning Inquiry* 7(2):28–50, https://doi.org/10.20343/teachlearninqu.7.2.3.
Hoon, A., E.J. Oliver, K. Szpakowska, and P. Newton. 2015. Use of the 'Stop, Start, Continue' method is associated with the production of constructive qualitative feedback by students in higher education. *Assessment and Evaluation in Higher Education* 40(5):755–767, https://doi.org/10.1080/02602938.2014.956282.
Hutchings, P. 2000. Approaching the scholarship of teaching and learning. Introduction to *Opening Lines: Approaches to the Scholarship of Teaching and Learning*. Carnegie Publications, the Carnegie Foundation for the Advancement of Teaching, Menlo Park, CA.
Kolb, D.A. 1984. *Experiential Learning: Experience as the Source of Learning and Development*. Prentice Hall, Eaglewood Cliffs, NJ, 256 pp.
Kordts, R., K. Daae, M. de Vareilles, E. Gandrud, A.D. Årvik, and M.S. Glessmer. 2025a. Student views on active learning in the geoscience curriculum. *Nordic Journal of STEM Education* 9(3):19–36, https://doi.org/10.5324/njsteme.v9i3.6361.
Kordts, R., M. de Vareilles, K. Daae, E. Gandrud, A.D. Årvik, and M.S. Glessmer. 2025b. TAP: Teaching Analysis Poll for student feedback. *Oceanography* 38(2):83–85, https://doi.org/10.5670/oceanog.2025.305.
Lévy, L., and M.S. Glessmer. 2025. Working to overcome the fear of student discomfort and peer judgment while teaching for sustainability. *Nordic Journal of STEM Education* 9(3):300–307, https://doi.org/10.5324/njsteme.v9i3.6304.
Mackin, K.J., N. Cook-Smith, L. Illari, J. Marshall, and P. Sadler. 2012. The effectiveness of rotating tank experiments in teaching undergraduate courses in atmospheres, oceans, and climate sciences. *Journal of Geoscience Education* 60(1):67–82, https://doi.org/10.5408/10-194.1.
McKinney, K. 2007. *Enhancing Learning Through the Scholarship of Teaching and Learning: The Challenges and Joys of Juggling*. Anker Publishing, 224 pp.
Meyer, J.H., and R. Land. 2006. Threshold concepts and troublesome knowledge: An introduction. Pp. 3–18 in *Overcoming Barriers to Student Understanding*. Routledge.
Miller-Young, J. 2023. Conducting interviews: Capturing what is unobserved. Chapter 10 in *SoTL in Action: Illuminating Critical Moments of Practice*. N.L. Chick, ed., Taylor & Francis, https://doi.org/10.4324/9781003447047-13.
Møller, T.E., S. Kvarøy, and B. Hannisdal. 2023. Students' response to the introduction of active learning and computational practices in a bachelor-level earth science course. *Nordic Journal of STEM Education* 7(1):15–26, https://doi.org/10.5324/njsteme.v7i1.4827.
Nguyen, D.C., and C. Welch. 2025. Generative artificial intelligence in qualitative data analysis: Analyzing—or just chatting? *Organizational Research Methods* 29(1), https://doi.org/10.1177/10944281251377154.
Nyarko, S.C., and H.L. Petcovic. 2023. Do students develop teamwork skills during geoscience fieldwork? A case study of a hydrogeology field course. *Journal of Geoscience Education* 71(2):145–157, https://doi.org/10.1080/10899995.2022.2107368.
Olsson, T., K. Mårtensson, and T. Roxå. 2010. Pedagogical competence: A development perspective from Lund University. Pp. 121–132 in *A Swedish Perspective on Pedagogical Competence*. Å Ryegård, T. Olsson, and K. Apelgren, eds, Division for Development of Teaching and Learning, Uppsala University.
Robnett, R.D., C.J. Ballen, S. Fagbodun, K. Lane, S.J. McCoy, L. Robinson, E.I. Weems, and S. Cotner. 2022. Are synchronous chats a silver lining of emergency remote instruction? Text-based chatting is disproportionately favored by women in a non-majors introductory biology course. *PLoS ONE* 17(10):e0273301, https://doi.org/10.1371/journal.pone.0273301.
Swanson, R. 2024. The scholarship of teaching and learning. Pp. 87–112 in *Research Connections: Career and Research Journeys from the SMP Community*. Association for Women in Mathematics Series, vol. 36, A. Brisbin, K. Lange, E. McNicholas, and E. Purvine, eds, Springer, Cham, https://doi.org/10.1007/978-3-031-81217-0_5.
Tasler, N. 2025. The human and nothing but the whole human: With head, heart, and hand. Pp. 71–84 in *Stories of Hope: Reimagining Education*. S. Abegglen, R.F. Heller, R. Madhok, F. Neuhaus, J. Sandars, S. Sinfield, and U. Gitanjali Singh, eds, OpenBook Publishers, https://doi.org/10.11647/obp.0462.06.
Wenger, E. 1998. Communities of practice: Learning as a social system. *Systems Thinker* 9(5):2–3.
Zeng, Z., and L. Rips. 2025. Problem-solving strategies in frictional force problems: Evidence from think-aloud protocols. Pp. 4,193–4,200 in *Proceedings of the Annual Meeting of the Cognitive Science Society*, vol. 47, https://escholarship.org/uc/item/0kj743ns.

ACKNOWLEDGMENTS

We thank Katarina Mårtensson for very helpful feedback. This work was supported by the Norwegian Directorate for Higher Education and Skills under grant number AKTIV2021/10219 - CoCreatingGFI.

AUTHORS

Mirjam S. Glessmer (mirjam.glessmer@uib.no), Geophysical Institute, University of Bergen, Norway, and Faculty of Engineering, Lund University, Sweden. **Kjersti Daae**, Geophysical Institute, University of Bergen, Norway. **Oddfrid Førland**, STEM Education Research Center, University of Bergen, Norway. **Robert Kordts**, Department of Education, University of Bergen, Norway.

ARTICLE CITATION

Glessmer, M.S., K. Daae, O. Førland, and R. Kordts. 2025. Developing a scholarly approach and contributing to conversations about teaching and learning. *Oceanography* 38(4):56–62, https://doi.org/10.5670/oceanog.2025.e410.

COPYRIGHT & USAGE