

Section 2. Challenging Orientations to Instruction and Assessment

In the second section of the collection, we turn our attention explicitly to pedagogy and assessment. All disciplines have their own ways of communicating—from the genres they select to the syntactical structures and citation practices they use. These communicative practices serve very important, practical purposes and reflect the work the community does. Similarly, all disciplinary communities have ways of viewing the world that shape the ways in which those communicative and practical aspects are performed. What counts as evidence, for example? What kinds of questions are worth exploring, and which are not as relevant? What are our end goals in disciplinary writing courses or disciplinary courses that incorporate writing? What kind of writing is fair and appropriate to assign? These are questions we must consider when planning and enacting our courses, but they are not always questions with easy answers. These systems of doing help communities function and contribute to the world in specific and necessary ways. Yet, the hidden assumptions that often come with this work contribute to the marginalization of individuals in STEM.

The chapters in this section ask us to think actively about the ways in which disciplinary practices and norms are reified in the language choices we make and the types of questions we consider, as well as the practical applications of social justice orientations to our work. They ask us to move beyond teaching formulaic approaches to communicating as a member of a disciplinary community and into spaces where individuals have agency to critique and question those practices. Finally, they ask us to consider our own roles in designing inclusive spaces and to be more intentional and conscious about the impacts of assignments and classroom interactivity. Here, we are more actively engaging with instructor worldviews and orientations to education. While there are still clear take-aways and applications, the chapters are much more philosophical in content.

This section continues the theme of creating space with reflections by Madison Brown and Madeline Dougherty. Brown's reflection on the power of process-oriented assessment on her identity and sense of belonging in a physics course asks us to challenge our conceptions of the types of knowledge we can assess in our courses. Similarly, Dougherty highlights how the type of feedback we provide students can have significant impacts on their sense of belonging within educational and disciplinary spaces (in Dougherty's case, a STEM vocational program). These vignettes are followed by chapters discussing the ways in which we can create space for students to learn and grow as members of their discipline while still leaving space for negotiating disciplinary orientations with their own identities.

The chapters in this section explore topics such as the transfer of critical reasoning and judgment in engineering spaces (Riedner et al.), frameworks and assignments that exemplify best practices in writing across the curriculum and inclusive teaching (Malette), creating scaffolded, meaningful writing assignments that engage students in activities that lead to public-facing artifacts (Seraphin), challenging traditional grading frameworks in a biochemistry undergraduate research course to illustrate inclusive strategies (Newell-Caito), and incorporating public-facing genres into a STEM student teaching program that call for an activist lens as it relates to disability (Johnson et al.). The section concludes with a demonstration of the power of liberatory frameworks within neuroethics courses (Fink). In this final chapter, Fink shows how to apply Freire's concept of *conscientização* to a pedagogical orientation applicable to STEM educational spaces.