

## **A Transatlantic Conversation About Critical Thinking and Writing in STEM**

We write in response to the recent Erwin and Zappile article, “Organizational Response to a University Writing Initiative: Writing in the Disciplines (WID) in an Interdisciplinary Department” (*Double Helix*, Vol. 1, 2013), and how it echoes our work on an inter-institutional project which began as an exploration of interdisciplinary approaches to communication skills in STEM subjects. As project partners, we come from three different institutions in Ireland: National University of Ireland, Maynooth; Dublin City University; and the Royal College of Surgeons in Ireland (Dublin). We share the concern noted in Erwin and Zappile’s piece about the “effective communications skills” so desired, it appears, by employers on both sides of the Atlantic. Similarly, we are convinced of the connection between writing and critical thinking, and our work specifically emphasizes the need for enquiry to be central to our curriculum design and our pedagogy. Our assertion is that enquiry be at the core of interdisciplinary learning for STEM undergraduates, where research-informed pedagogies, such as Enquiry, Problem- and Project-Based Learning, are especially useful in this regard. This statement resonates strongly with Erwin and Zappile’s reference to the WAC Clearinghouse journals on the use of “problem-based learning and other writing-intensive assignments to foster critical thinking,” and we see our work as addressing the nexus of critical thinking and writing; for us, in this project, addressing this nexus is the ability to bring an emerging undergraduate disciplinary knowledge, and way of thinking and being, to an interdisciplinary space.

In our current project, one of our outcomes is the drafting of “guiding principles” which one might employ in the development of interdisciplinary approaches to learning for STEM undergraduates, where we broaden “communications skills” to include the idea of competences or attributes for enquiry: the critical literacy which develops as undergraduates move from students to emergent scholars.

Our draft principles include the following two which relate specifically to faculty:

- facilitating interdisciplinary learning means creating awareness in undergraduate programmes of disciplinary identity, and the variety that exists between different disciplines and discourse communities; this work is not the space of writing and rhetoric experts only, but rather this work needs to be of concern to all teachers and learners;
- discipline experts—faculty—need to work collaboratively across the disciplines and with learning support staff to develop interdisciplinary approaches; this collaboration will certainly include working with librarians, teaching staff, writing and oral communication experts, research experts, and others.

Like Erwin and Zappile, we believe that the successful implementation of programmes based on these or other similar principles relies on a balance between top-down and bottom-up approaches and on “empowering faculty members.” As we advance our work in this area, we hope to continue to contribute to the ongoing conversation with colleagues and to learn from their experiences.

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