InTeGrate Faculty Stories

InTeGrate Facilitates Student Centered Teaching and Interdisciplinary Institutional Change

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The perspective summarized in the brief is from a geoscience faculty member who teaches courses for “a range of students” who are primarily geoscience majors as well as one course for non-majors. As a Material Developer (MD), an interdisciplinary approach to creating a sustainability-focused degree was important to him. Prior to participating in InTeGrate, he used a variety of teaching techniques to encourage students to critically think about their environment. However, after being part of a material development team, he focused more on teaching metacognitive and study skills in the classroom, to increase student’s ability to observe, question and understand the natural environment.

INFLUENCE ON TEACHING AND LEARNING

The faculty member credits InTeGrate with allowing him to be “much more supportive of the individual learner” and to help students reflect on the strengths and weaknesses of their comprehension. He also helped students find ways to address their weaknesses and introduced a flipped classroom model, reducing his lecturing even further. Teaching students metacognition helped them think more about the impact of science on the world. He elaborated:

That thinking about thinking, thinking how to think as a scientist, thinking about how to think about the world around us, and then how does that world rely on the science, but then also how does the science impact that world?

Being an MD also enabled him to make changes in assessment, with more of a focus on formative versus summative assessment. Prior to InTeGrate, students took exams and then the class moved on. Now he uses ungraded assessment and exams for students to reflect on their strategies for studying. The exams now include more critical thinking questions and a formative assessment approach, as described below:

InTeGrate has made me think more about how the students are learning on a more individual basis, and that formative assessment is important, but also the non-graded assessments.

INFLUENCE ON INTERDISCIPLINARY COLLABORATIONS

InTeGrate material development allowed for conversations across disciplines to create interdisciplinary, sustainability-focused curriculum. It helped resolve tensions over “ownership” of curricular material and build connections. He explained:

I think a key [outcome] is much more collaboration, but really the opportunity to get together and have discussions. I think that was the baseline of it. I think we tore down some barriers. I think we tore down the compartmentalization of the ivory tower. Instead of having all these separate ivory towers, I think there are now bridges between them.

Students expressed interest in having sustainability courses and degrees on campus and the collaborations described above helped pave the way for a new sustainability-focused major. The influence spread beyond the initial departments involved in InTeGrate to other disciplines, creating a “ground swell” of support for the new major.

The faculty member said he will continue taking part in a community focused on science and society. He feels it is not possible to do his “job as an educator in isolation” when dealing with real-world problems. He argued that he needs to be part of the solution by helping students understand how science can address environmental problems:

I need to use my scientific perspective and the fundamental facts that my science contributes to our society, and I have to make sure that people begin to implement changes that are going to protect human resources and economic resources to the betterment of future generations.

For this faculty member, participating as an MD with InTeGrate generated new motivation, inspiration, and collaboration that he believes improved both his teaching style and effectiveness. The program also helped facilitate interdisciplinarity in other courses and disciplines, and a new sustainability degree.