

Title: TIP: Piloting a Physics Partnership

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Abstract:

Our HBCU-UP Targeted Infusion Project (TIP) has brought together the faculty and administrators of a four-year HBCU and a nearby two-year, Predominately Black Institution. Our project goal is “To form a successful physics partnership between South Carolina State University (SCSU) and Orangeburg-Calhoun Technical College (OCtech) that will strengthen both programs and serve as a model of best practices for developing a STEM collaboration.” We are accomplishing this through the sharing of resources and a variety of activities. We report on our successes and challenges at the midpoint of a three year project funded by the National Science Foundation.

The OCtech faculty has conducted training for SCSU students and faculty in the use and application of LabVIEW software and alternative-energy projects. This has led to the introduction of these topics into SCSU courses. For the first time, a SCSU faculty member has taught a physics course at OCtech for their students. Invention Instruction activities have been developed for introductory physics courses and both institutions have increased the use of cyberlearning resources.

New courses and coursework have been developed at both institutions. We have completed one semester of teaching calculus-based physics using the so-called “flipped or scrambled instruction”. This method requires students to preview short videos on topics in mathematics and physics prior to a live lecture and problem solving session. More than 100 videos of length two to five minutes each have been developed for the two-semester physics sequence. This hybrid method of teaching has been generally well received by our students. Technical issues and significant adjustments in time commitment have challenged faculty and students alike. A member of the SCSU education faculty has conducted an assessment of our flipped instruction during the fall 2014 term using a variety of methods including pre- and post-testing, focus groups and individual student interviews. We discuss some very preliminary assessment results.

Funder:

Funding for this project has been provided by the National Science Foundation through award HRD-1332449