

Title: TIP: Piloting a Physics Partnership: Year 3 Update

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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 (PBI) 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 report on our successes and challenges after more than two years of a three year project funded by the National Science Foundation.

OCtech has modified its physics instruction using a new textbook and online homework to enhance the problem-solving skills of their students. The TIP project is funding a math instructor at OCtech who is engaged in physics coursework at another university to prepare him for certification to teach physics at OCtech. Faculty members from both OCtech and SCSU are team-teaching the physics lecture and lab courses for the first time in the history of the two schools. OCtech has provided training for SCSU faculty in the use of LabVIEW software, project-based instruction and alternative energy activities.

SCSU has tested and incorporated Invention Instruction activities in the introductory physics lecture and lab courses. Additionally we have developed over 150 videos of short length on select math and physics topics that are viewed by the students prior to class as part of the "flipped" or "scrambled" method of instruction. A member of the SCSU education faculty is serving as the evaluator for the project and has three semesters of results measuring the effectiveness of the new methods of teaching. He has conducted an assessment of our flipped instruction using a variety of techniques including pre- and post-testing, focus groups and individual student interviews. We discuss the evaluation results to date.

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