Reformed Undergraduate Instruction and its Subsequent Impact on Secondary School Teaching Practice and Student Achievement

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Abstract: The Arizona Collaborative for Excellence in the Preparation of Teachers (ACEPT) Program is one of several reform efforts supported by the National Science Foundation. The primary ACEPT reform mechanism has been month-long summer workshops in which university and community college science and mathematics faculty learn about instructional reforms and then attempt to apply them in their courses. Previous ACEPT evaluation efforts suggest that, when implemented, the reforms boost undergraduate student achievement. The initial purpose of the present study was to discover whether enrollment of preservice teachers in one or more of these reformed undergraduate courses is linked to the way they teach after they graduate and become in-service teachers. Assuming that a link is found, a second purpose was to discover whether the presumed positive effect is in turn linked to their students’ achievement. In short, the answer appears to be yes, at least among the biology teachers and students surveyed. Compared with controls, the biology teachers who had enrolled in one or more ACEPT reformed course during their teacher preparation program demonstrated significantly higher scores on the measure of reformed instruction and their students demonstrated significantly higher achievement in terms of scientific reasoning, nature of science, and biology concepts. These results support the hypothesis that teachers teach as they have been taught. Furthermore, it appears that instructional reform in teacher preparation programs including both methods and major’s courses can improve secondary school student achievement. © 2003 Wiley Periodicals, Inc. J Res Sci Teach 40: 939-957, 2003