Exploring Remedial Math through a Number Course for Preservice Teachers

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This proposal describes a pilot study of replacing a remediation mathematics class for undergraduates with a credit-bearing mathematics course designed for elementary education majors. The replacement course focused on number and operations. Results of pass rates, placement test scores (pre and post the course), as well as course feedback will be shared.

Keywords: Undergraduate mathematics, Algebra, Remediation

According to the National Center for Education Statistics report by Chen (2016), "33 percent of students entering public 4-year institutions took a remedial math course" (p. 16). Many of these remedial math courses are targeting algebra, which is a gatekeeper for many students in successfully earning degrees (Moses & Cobb, 2002). Remedial coursework is widespread and impacts both advantaged and disadvantaged populations of students (Chen, 2016). In addition, Complete College America's (2012) report estimates that $3 billion are spent on courses, such as remedial math courses, that are not going to count towards a degree.

In order to address the problem of offering remedial algebra classes at a university in the Northeastern United States, this semester a math course for elementary teachers focused on number and arithmetic was designated as a replacement for the remedial algebra course. This course would allow students to earn three credits towards degree completion. Two sections of the math course for elementary teachers were taught by the same instructor with one section having primarily remediation students (N = 18) and the other section primarily having education students (N = 23).

This pilot study examines the success of the use of the math course for elementary teachers as a replacement for the remedial math course through a few different measures. The analysis focuses on the remediation students (N = 24), compared to the education students (N= 17) and the remedial students in the two sections of the traditional remedial algebra course offered during the same semester (N = 39). One measure of success is examining pass rates of the pilot group compared to pass rates of the other two sections of the remedial math course and the education students. In this regard, success is measured by undergraduate students earning mathematics credits by passing the course as well as the course grade positively impacting the students overall grade point average. Another measure of success will be examining pre-test scores compared to post-test scores on a placement test (ALEKS) before and after the course by both remedial and education students. Information from students around their mindset when taking the pre-test as well as the circumstances of the pre-test will be taken into account as the scores are examined. The pre-test was taken by the students off campus on their own terms. Historically, students have gotten assistance on the pre-test or have not taken the test seriously by taking it on a cell phone or just completing it quickly. Finally, course feedback will be analyzed and shared.

Because the course is being completed now, the analysis has not been completed. The poster, however, will share results of the described analysis. These results will indicate what, if any, measures of success were gained. Future research might investigate changes in beliefs and attitudes about mathematics as well as incorporate qualitative analysis from data sources such as student interviews while implementing a replacement course such as this.

References

Chen, X. (2016). Remedial Course taking at U.S. Public 2- and 4-Year Institutions: Scope, Experiences, and Outcomes (NCES 2016-405). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved 29 November 2018 from http://nces.ed.gov/pubsearch.

Complete College America. (2012). *Remediation: higher education's bridge to nowhere*, Complete College America, Washington, viewed 29 November 2018, <https://www.insidehighered.com/sites/default/server_files/files/CCA%20Remediation%20ES%20FINAL.pdf>.

Moses, R., & Cobb, C. E. (2002). *Radical equations: Civil rights from Mississippi to the Algebra Project*. Beacon Press.