Homework Resubmissions: What is the Impact on College Students' Exam Scores?

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Homework is a debated issue in educational research. Many researchers have explored aspects of homework including: effort, amount, justification, and value (Núñez et al., 2014; Cooper et al., 2006; Xu, 2023; Fan et al., 2017; Epstein, 2023). This research aims to assess the different qualities of this common practice for both students and teachers. One area of homework research that currently contains few studies is homework resubmissions. Homework resubmissions have been researched in different disciplines, countries, and age groups (e. g. Zhu & Leung, 2012); this study addresses the gap in research on homework resubmissions and exam scores in undergraduate mathematics in the United States. In this study we address the research question: how are undergraduate College Algebra students' homework resubmission patterns influencing their exam scores?

Data Collection and Analysis

We collected 141 undergraduate College Algebra students' homework scores and exam scores during one semester. Each exam had a number of associated homeworks (HWs): four HWs for Exam 1, three HWs for Exam 2, three HWs for Exam 3, and all 12 HWs for the Final. For each exam, students' HW resubmission patterns were ranked into five groups. Two examples of rankings are as follows: (1) students who resubmitted their HWs and improved their scores were ranked above students who resubmitted and did not improve their score, (2) students who submitted their homework and received perfect scores were ranked above students who resubmitted and improved their HW scores. An ANOVA was conducted to compare students' HW resubmission patterns with their exam scores.

Results and Conclusions

We report here specific results from Exam 2. Two significant results were found from our analysis of students' HW resubmission patterns. First, there was a significant difference in exam scores among the HW resubmission patterns ($F(4, 136) = 12.394$, $p<0.001$). Tukey's HSD post hoc test results revealed that the students who resubmitted HWs earned exam scores that were not significantly lower (M=95.24, SD=4.07) compared to students who received perfect HW scores (M=96.35, SD=4.6). Second, Tukey's HSD post hoc test results revealed that students who did not submit or not resubmit their HW earned exam scores significantly lower (M=61.6, SD=15.59; M=76.94, SD=17.16) compared to students who resubmitted or received perfect scores (M=95.24, SD=4.07).

These results suggest that homework resubmissions are beneficial for student learning. The positive relationship between homework resubmissions patterns and exam scores supports the inclusion of homework resubmission in more undergraduate math classes. We hope our results inspire more research into homework resubmissions at the undergraduate level and more opportunities for students to learn content through the resubmission process.

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