

The Effects of Test Retakes and Required Relearning Processes on AP Physics 1 Students



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Background

In physics, many concepts build on previous topics, yet all students move on to the next unit, regardless of their mastery of the previous unit. My hope with this research is to better understand how offering retakes, with required relearning assignments, affects students' performance in an AP Physics 1 class.

Primary Research Question

How effectively does retaking a test and following a prescribed relearning process help a student succeed in AP Physics 1?

Sub Question #1:

What relearning resources do students find most helpful?

Sub Question #2:

How does the retake policy affect my workload?

Treatment

Any student who scores below 70% on a summative assessment will have the option of retaking a new version of the assessment after a relearning process has been completed. The relearning process includes:

1. Completing any missing formative work.
2. Looking over the original assessment.
3. Completing a set of practice questions on AP Classroom.
4. Utilizing at least one resource (video or website) posted on the "Unit Resources" page of my Schoology site.

Data and Results

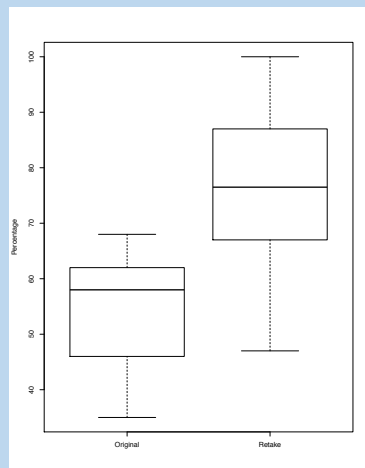


Figure 1. Distribution of scores on the Original Test and the Retake ($N = 42$).

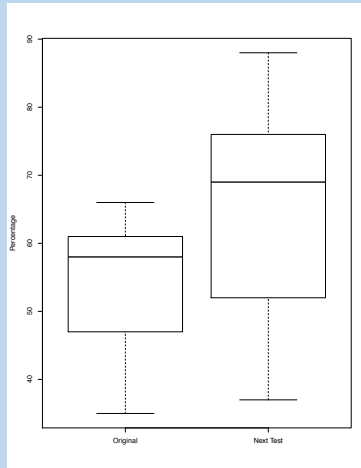


Figure 2. Distribution of scores on the Original Test and the Next Test ($N = 31$).

Primary Question Results:

Students who went through the relearning process scored statistically significantly higher on the retake, as well as on their next unit test. This same group of students showed more improvement on the next unit test than students who qualified for the retake but chose to not do the relearning process.

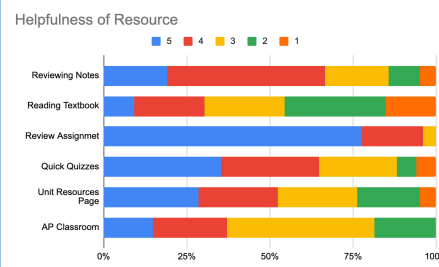


Figure 3. Likert scores for test review resources ($N = 77$).

Sub Question #1 Results:

Students consistently preferred review resources that included an opportunity to answer questions, then receive feedback on their answers. More passive review methods or ones in which feedback was not given were rated lower.

Sub Question #2 Results:

In six months I put in 32 hours of extra work due to my new policy. Fifteen of those hours were put towards things that I can reuse in the future, while 13.5 hours were spent on tasks that would be required of me each year.

Claims, Evidence, and Reasoning

This action research was quite successful. Students who went through the relearning process before retaking a test were more successful on the retake and next test. Despite no long-term data being analyzed, certain indicators like failure rates and students dropping the class went down, implying an overall improvement in student success. Students overwhelmingly preferred review and relearning resources which provided "retrieval practice" and active learning, giving guidance for future implementation. And lastly, the time required to implement this new policy was not overwhelming and will only decrease in future years.