

MATH SAT/ACT PRE & POST TEST RESULTS AND SUMMARY

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Introduction

The Back 2 Basics Summer Institute focused on SAT/ACT Test preparation with area high school students. This report is a summary of the overall success of the mathematics instruction of the program. The program consisted of a two week duration, in which the students participated in drills and practice for the SAT and ACT. In each week, the students received a pre-test and feedback on that Monday, rigorous instruction and question drills on Tuesday and Wednesday, and then finally a post-test on Thursday. The students were allowed 30 minutes to complete a test, followed by 30 minutes of test feedback. On the days of instruction, the students received an hour of lecture/drills to help prepare them for the post-tests.

Both tests contained common elements. This allowed for increased instruction, as time for lecture and drills were only 1 hour for two days of each week. The only major differences between the SAT and ACT exams were the time allotment, number of questions, and question types.

The students received 30 minutes to answer 25 questions on the SAT pre and post tests, while students still received 30 minutes but had to answer 30 questions for the ACT pre and post tests. In this sense, the ACT exam presented an increased challenge, yet the overall scores on the ACT were higher than that of the SAT; presumably because the lecture and drills for the SAT could also assist a student that needed to study for the ACT.

Aside from the time allotment per question, the ACT considered two more subject areas that are not tested on the SAT: trigonometry and complex numbers. The information presented on the exam is not in too much detail, but students are expected to know how to determine the sine, cosine, and tangent of a given angle of a right triangle of known dimensions; and also, they must know elementary algebra using i , the mathematical symbol for -1 .

Results

Overall, the students showed significant improvement from the first pre-test (SAT) to the last post-test (ACT). This is even as the level of difficulty increased with each test. In fact, the students ACT pre-test average was higher than their SAT pre-test average (see Figure 1). This suggests that information learned during the first week was retained and used during the second week (since most information is common to both exams).

This trend continued in an even smaller sample, where only the students who were present for all four exams were considered (Figure 3). The overall scores, in this instance, were higher, and the same trend of improvement was noticed. One

student scored the highest on the SAT pre-test, which suggests that she was the most prepared from the beginning of the institute. Her scores steadily increased as she scored even higher on the SAT post-test; and then higher on the ACT pre-test and then finally again, making the highest grade of everyone for any exam on the ACT post-test. This suggests that the astute student was able to benefit from the mathematics instruction.

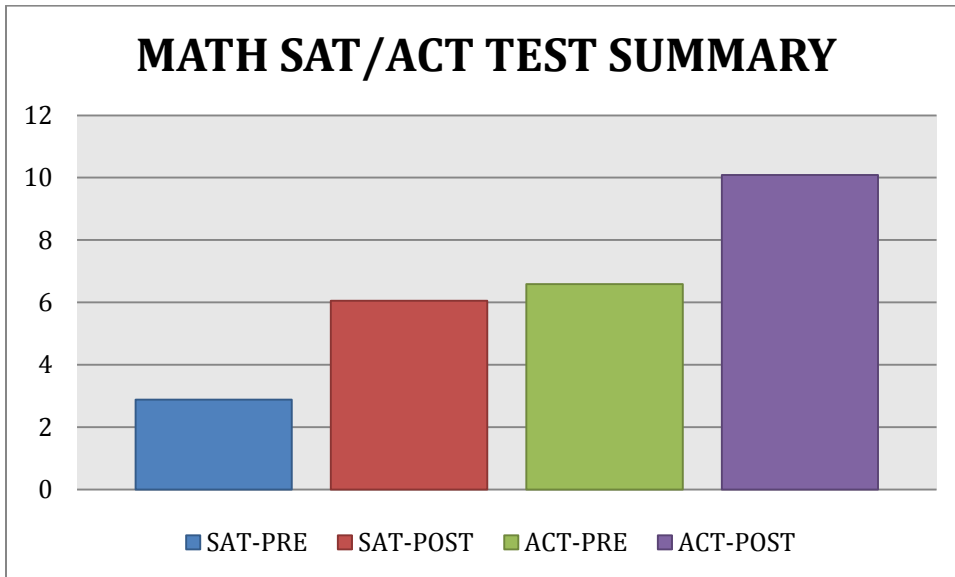


Figure 1

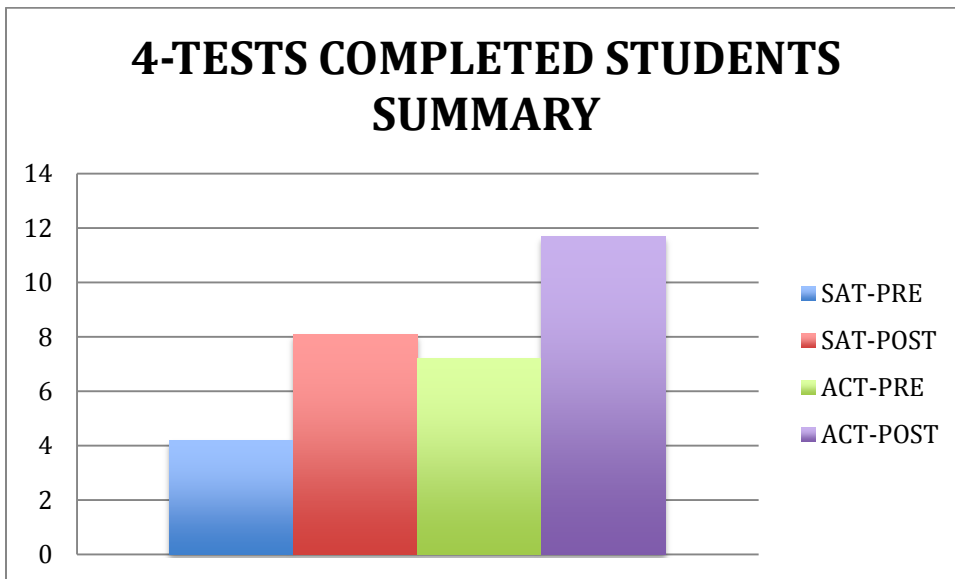


Figure 2

The charts below, Figures 3 & 4, show the individual performances per student (Figure 4 follows performance for students who took all four exams). From the chart, it is clear that the highest score achieved increased per exam on average. An anomaly is that the ACT pre-test highest score was slightly lower than the SAT post-test score for those who took all four exams. This is simply due to the fact that the highest scoring student for the SAT post-test was not present for the ACT pre-test. Remarkably, by the end of the institute, every student answered at least 5 questions correctly; whereas, at the start of the institute a significant number of students answered only one question correctly.

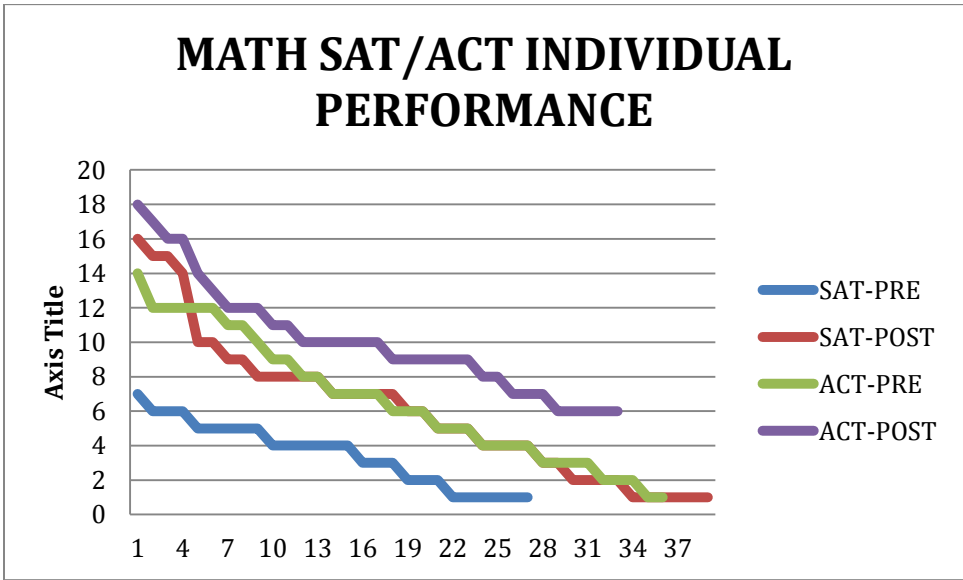


Figure 3

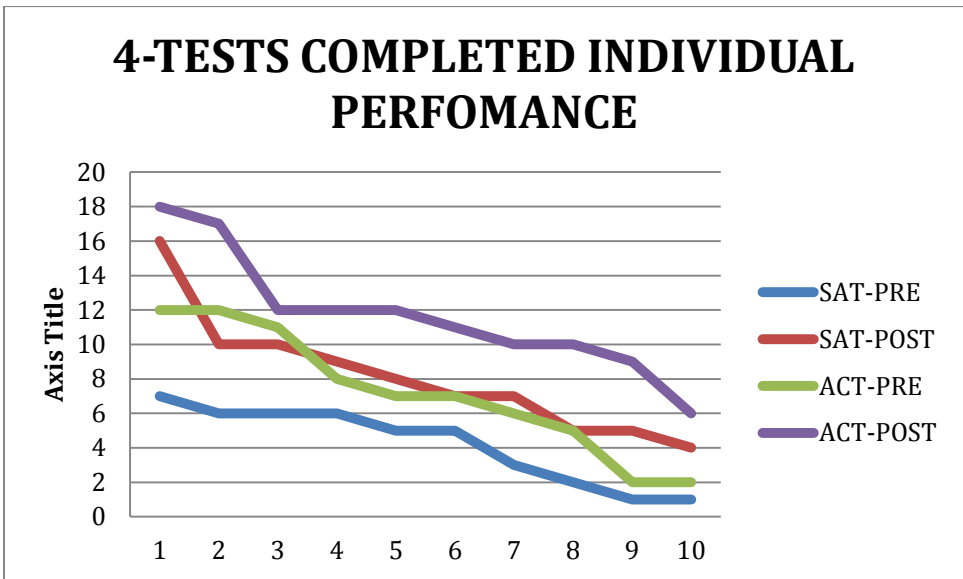


Figure 4

Conclusion

From the charts, it may be shown that the students benefitted from the math lectures and drills. Not only were top students able to increase their scores, but students who struggled were also able to increase their individual scores. The increased improvement throughout the institute is indicative of the pertinence of the math lectures and drills, in particular, and the Back 2 Basics Institute, in general.