



Tips and Techniques

Practice Makes Perfect

Dr. Dennis Demuth

Scripture Verse: "Practice these things, immerse yourself in them, so that all may see your progress." 1 Timothy 4:15, ESV)

Most have heard of the phrase "Practice makes perfect." But, have you ever heard of "perfect practice makes perfect?"

One day I walked into the main school office and noticed a high school student aide working on an assignment as she waited for the next aiding task. As I passed, I said to her, "Practice makes perfect." She responded, "Yes, but it is perfect practice that makes perfect."

It is expected that the more practice a person has on a certain task the more success they ought to realize, whether it is learning the multiplication tables or throwing a football. Practice is essential for success. If you are going to require a heart transplant, you would like to have a doctor who has a lot of practice, as well as success. One of the reasons teachers give homework is for practice. Hopefully, this leads to greater success on quizzes and tests, and a higher grade point average, resulting in great college scholarship benefits. Ultimately, a more fulfilled life!

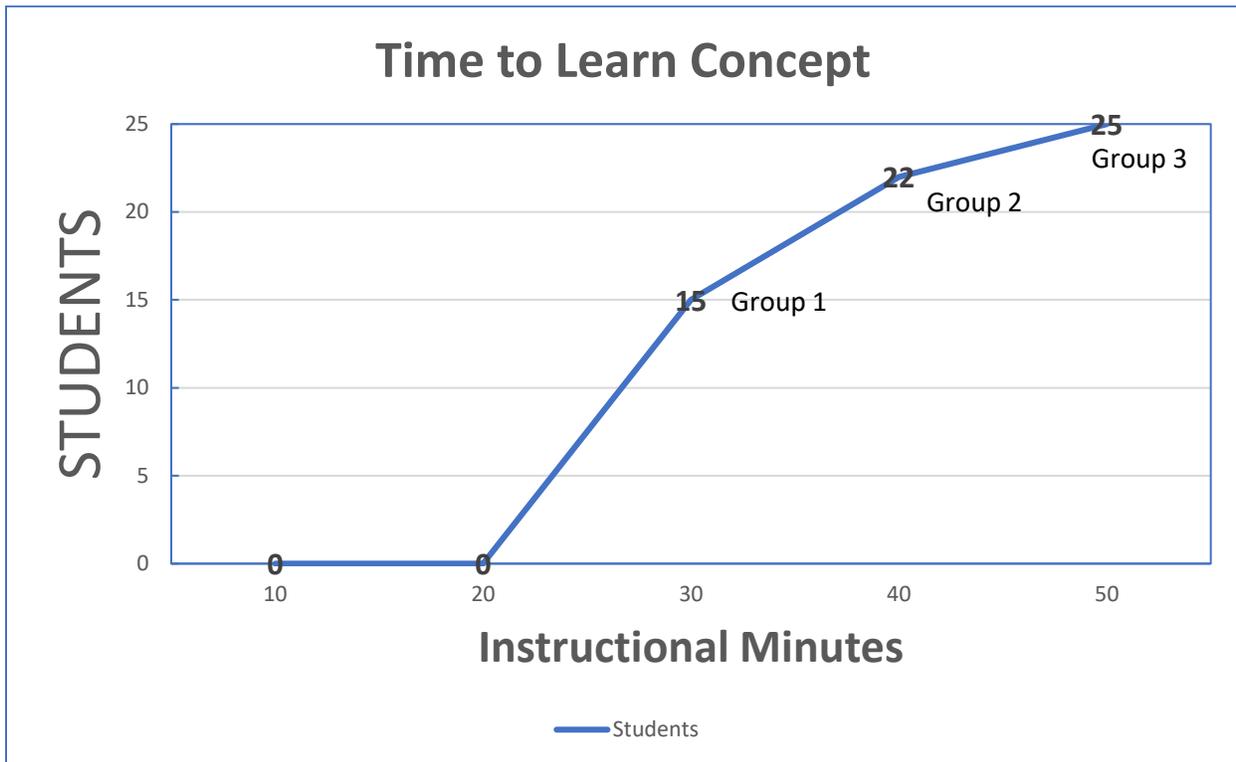
Brenda, one of my upper-level math teachers expressed a concern she had with a certain group of students who needed a lot more success in geometry. She couldn't understand how some students in her class always did well on tests while others did poorly. She knew that it was not just intelligence that made the difference, because the students who did poorly in her class demonstrated above average performance in other classes. She asked if I might have any suggestions on how she could improve the success of her low performing students. I agreed to do some classroom observations and offer some recommendations.

Mastery

During my observation, I observed an interesting event. Her class period was fifty-five minutes long, fifty of which was direct instruction. Thirty minutes into the lesson, Brenda paused to check to see if her students were understanding the concept being taught. From a show of hands, 15 out of 25 students indicated that they understood. Brenda continued to teach with the goal of 100% of her students mastering the concept.

Forty minutes into the period she did another check and 22 of the students had reached mastery of the concept. This gave her 10 more minutes of instruction to

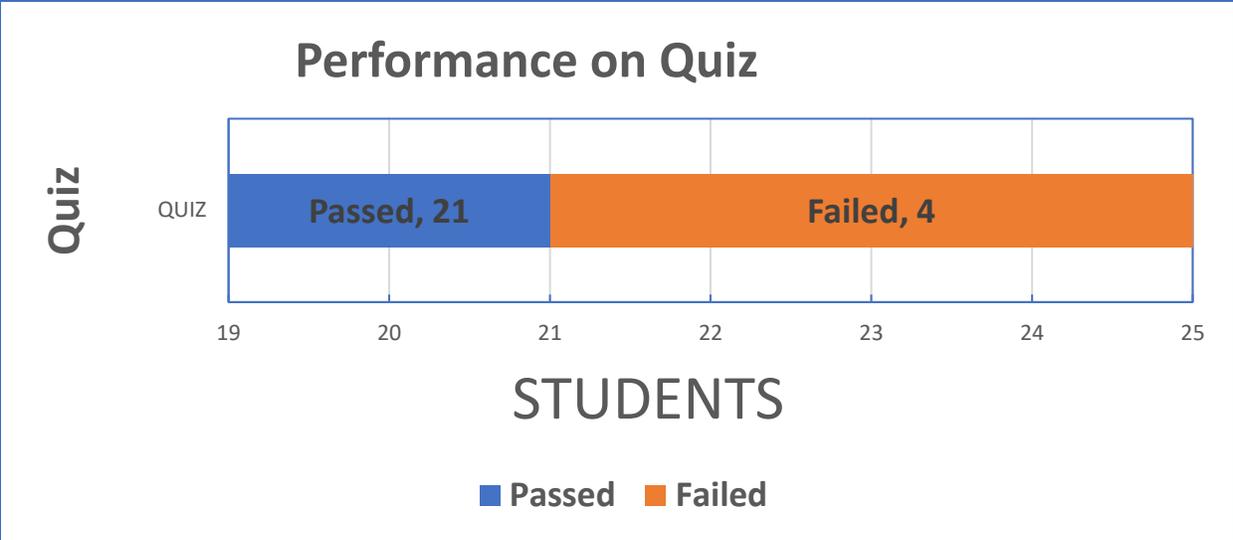
ensure that the remaining three students reached mastery, which became apparent by the end of the period, just before the passing bell rang. The diagram below shows what took place.



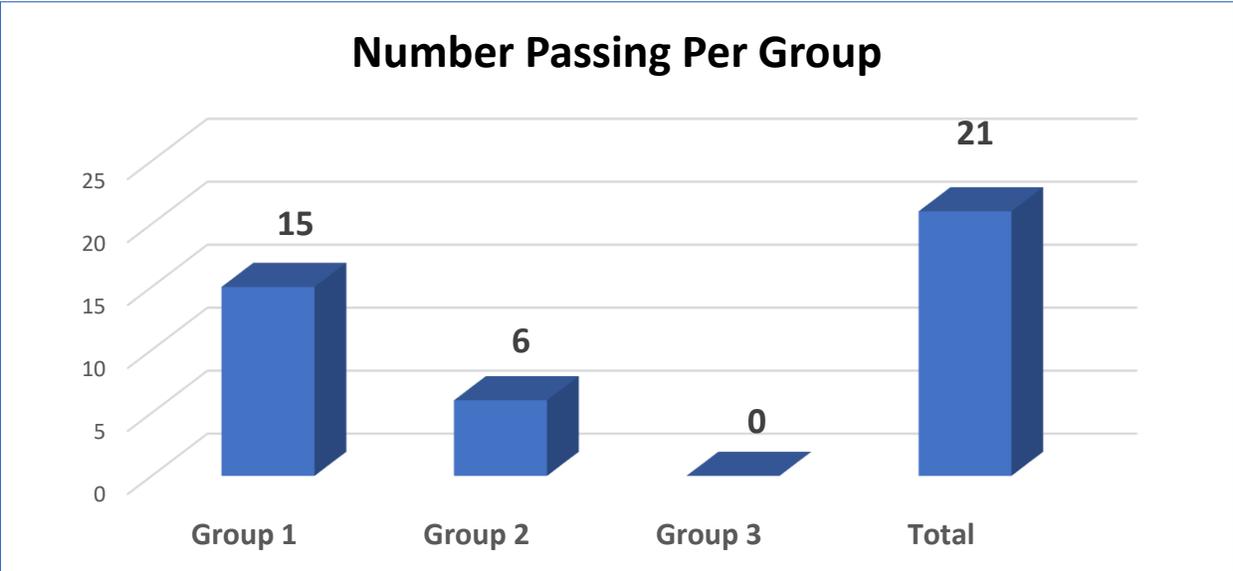
After thirty minutes of instruction 15 of 25 students had reached 100% mastery—Group 1. This represented 60% of the class. Within the next ten minutes or forty-minutes into the lesson, seven more students had gained mastery, for a total of 22 students or 88% of the class—Group 2. By the end of the instructional time or after 50 minutes of instruction, the last three students had mastered the content—Group 2. Brenda had accomplished her goal of 100% of her students reaching 100% mastery.

Forgetting

When the class resumed the next day, Brenda gave a surprise quiz to see how much her students remembered. She expected all twenty-five students to pass the quiz because they had known the material the day before. To her surprise, only twenty-one students passed the quiz; four students failed—they forgot what they had learned the day before. This chart illustrates their performance.



Further analysis of the performance of the students who failed the quiz was very revealing. All fifteen students (Group 1) who had learned the concept after thirty minutes of instruction, passed. Likewise, six out of seven students (Groups 2) that had learned the content within the first forty minutes of instruction had passed. All three students (Group 3) who finally mastered the content during the last ten minutes of the class failed.

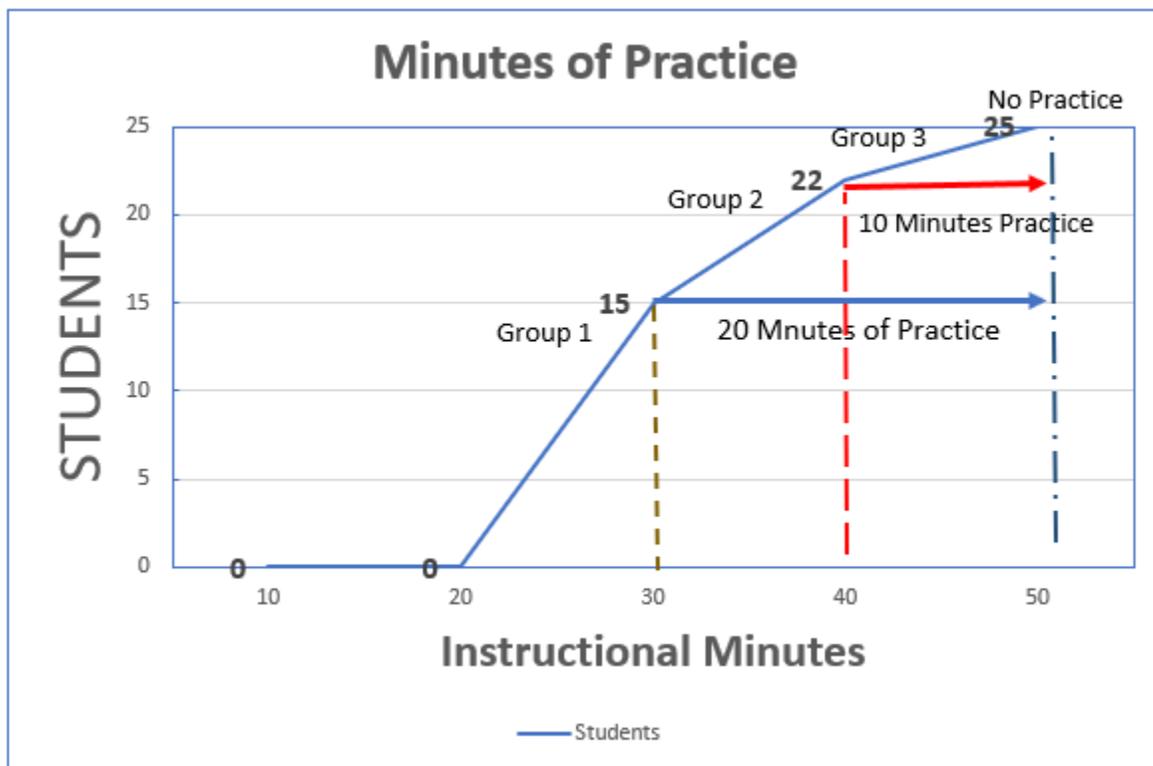


Since the quiz was not announced the day before, none of the students had reviewed the content presented the day before. Furthermore, no additional practice as part of a homework assignment was given. There was no indication that the students who passed the quiz had spent any additional time reviewing before the quiz. Could the passing rate be related to some other variable?

Overlearning – Practice Makes Perfect

One might wonder what it was that caused four of her 25 students to fail the quiz just one day later. Even the forgetting curve, which is opposite the learning curve, shows how students will gradually forget what they have learned over time. However, one would not expect sixteen percent to forget so quickly. One of the variables that could account for the difference in passing rates was the amount of practice and overlearning that took place during the instructional period the day before.

Let's take another look at Brenda's instructional period. Those who had mastered the content within 30 minutes had also experienced 20 additional minutes of overlearning prior to the class ending. Having mastered the content, they had the advantage of listening to the teacher continue to instruct as she approached the concept from a different angle; for these students, they had entered into practice which continued for 20 minutes.



The second group of students, those who had mastered the concept after 40 minutes, received 10 added minutes of review. For these first two groups, perfect practice made for a perfect score. Whereas, those that had reached proficiency by the end of the period had no opportunity for any review or getting the concept fixed in their memory banks unless they would take time out of class for review and practice.

Conclusion

This was Benda's typical instructional method. When she looked at the results of the observation, she understood why the same group of students were consistently successful while others struggled. Those with the most amount of in-class practice and overlearning had better grades.

Segmented Instruction

Brenda decided to make a change in her approach to the lesson. She decided to segment her instruction. Rather than teaching the entire class for all fifty minutes and trying to keep everyone's attention, as soon as a group of students mastered the concept being taught, they were moved to the back of the class and given a follow-up assignment. This allowed Brenda to move into a small group those students who still needed more instruction. She would then focus her attention on the students who had not as yet mastered the content. Thus, during the last ten minutes of class, she found herself teaching a very small group of students and finally one on one. As the result of more individual attention, the group of students who took the longest amount of time to master the concept mastered the content and retained it for a longer period of time. Furthermore, her discipline challenges with those students (Group 1) who were the first to master the content disappeared. They were happy not to have to listen to the teacher repeat content that they had already learned. By segmenting her class for both large and small group instruction and finally one on one, the overall class grade average improved. This was especially for those in the lowest performing group, those who beforehand, had little time for perfect practice.