Effectiveness of Re-teaching
Erin Gries, Texas Instruments & Sanofi-Aventis, High School Biology
College of Education, University of Arizona; Tucson High Magnet School

Introduction
Many students do not gain a full understanding of the concepts in a unit before the class moves on to the next unit. My goal was to measure the effectiveness of spending a class period re-teaching the concepts to these students in a small group setting to see if it would help them gain a better understanding of the concepts.

Investigation
This study took place during a 10th grade Biology class unit on evolution. I taught the major concepts of evolution using engaging laboratory activities, inquiry investigations, video clips, paper labs, problem based learning, and lectures. The students took a summative assessment that included an essay question at the end of the unit. If they scored below a 70% on the assessment, then they participated in a one day small group instruction and retook a similar exam the following day. During the intervention, I attempted to clarify conceptual misunderstandings by discussing the major concepts of evolution with the small groups of students. Twenty-three students participated in the study.

Connection to Industry
In the workplace, people typically learn new skills or content in a small group setting. If they do not have a full understanding of the concepts, then they typically keep trying to learn until they have grasped the concepts or skills. Too often in a classroom, students who do not understand concepts are passed over as the class moves on to the next unit. I wanted to see if small group instruction would be effective in teaching students who did not understand the concepts at the culmination of the unit.

Data Collection and Analysis
The essay question was scored using a six point system. There were six different required components to the essay question. Each written answer was awarded a point for explaining each of the six concepts. The scores ranged from 0 – 6.

Misconceptions stated in the essays were also noted and analyzed.

Findings
Re-teaching substantially increased student understanding of concepts of evolution.
• Students scored an average of .89 points on the first summative assessment and 3.06 points on the second summative assessment.

The number of written misconceptions decreased from a total of 13 written misconceptions on the first summative assessment to 9 total misconceptions on the second summative assessment.

• 1 student received a 0% on his first essay and a 100% on his second essay.

Conclusion
In my classroom, students are assessed daily and I adjust my teaching appropriately according to what they have shown that they understand. However, there are students who still do not understand the major concepts at the end of the unit. This research shows that if students are given time in a small group setting, they may be able to gain the understandings that they originally did not have. Redesigning a unit schedule to include small group instruction with select students will be more successful for students and the teacher.

Changes to Classroom Practice
In the future, I will design my units so that they include more one on one time for students who may be struggling to develop major understandings. Although this can be a challenge in a classroom, this research shows the effectiveness of providing this time and space for students. Incorporating daily small group discussions into the classroom will be even more effective.

References


Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the funders or partners.