Elizabeth Shaughnessy Reflection 2 STAT6070

Recommendation 2: Stress Conceptual Understanding Rather Than Mere Knowledge of Procedures

---

This article discusses the existence of adults' intuitions in probability and statistics. These intuitions typically contradict accepted theory on these topics. The article highlights three major findings from the author's research. The first finding was that students have their own theories or perceptions prior to instruction in probability and statistics and these theories and perceptions are typically contradictory to accepted theory. The second finding was that these theories and perceptions are usually very difficult for a teacher to alter. The final finding was that altering these theories and perceptions is also complicated because the student's beliefs are often contradicting their own beliefs. The author uses a common situation adults encounter: interpreting a weather person's probability of rain on a given day. The author refers to another study that found that most people perceive a "70% chance of rain" to mean it is almost guaranteed to rain that day. Even after instruction in probability and statistics, only 6% of the 119 students showed a change to an accurate perception.

This article aligns with the GAISE recommendation in that it highlights the problems a teacher encounters when students have incorrect perceptions of probabilities and statistics. These incorrect ideas about probability and statistics are hard to change, despite a teacher focusing on these conceptions. I think about incorrect perceptions in a statistics class is particularly important for students because many of them probably have no idea that their ideas about some theories are

incorrect. As teachers, we need to make them aware of these inaccuracies so that students can see the difference between their views and the accurate theories.

The most useful thing about this article was that it brought to mind the fact that many students do have inaccurate conceptions about probability and statistics. This is an issue I have not thought much about but this article brought to light some issues in teaching that I need to consider. Additionally, I agree with the focus of this article and the GAISE recommendation. In the standardized testing environment of most schools, so much emphasis is placed on calculations and procedures. However, just because a student can calculate something like standard deviation that does not mean the student understands standard deviation. I believe it is more important for students to understand a concept than just the procedure and this article focuses on common misconceptions in probability and statistics.