Assignment 4

Maya Stein

- For this assignment, I will be analyzing data from the barroso2021 data set. This data set is from the psymetadata package, and it observes the relationship between math achievement and math anxiety (https://psycnet.apa.org/record/2020-80018-001). Participants are in grades 1 through 6, and math ability is characterized as either low or not low. Grade 5 has a significantly larger sample size than the other grades, which will likely impact effect size measurements. Note: only grades 2 and 5 have students in the low math ability condition.
- The focus of this analysis will be analyzing differences in effect size across different parameters, where the absolute value was calculated, so values range from 0 (no effect) to 1 (strongest possible effect)

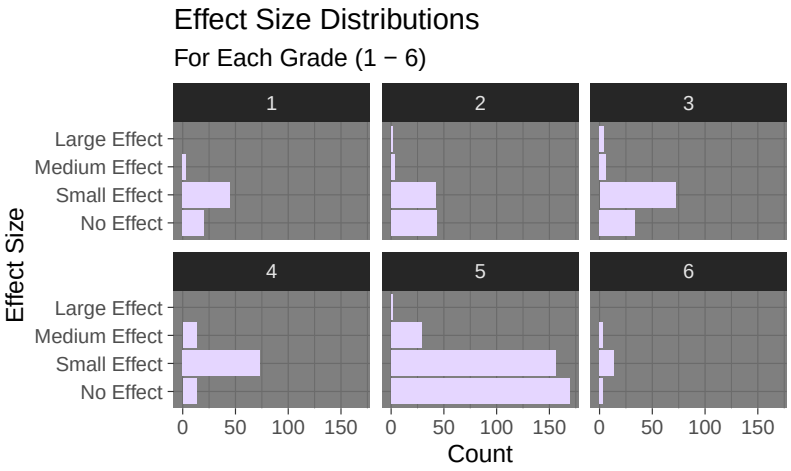
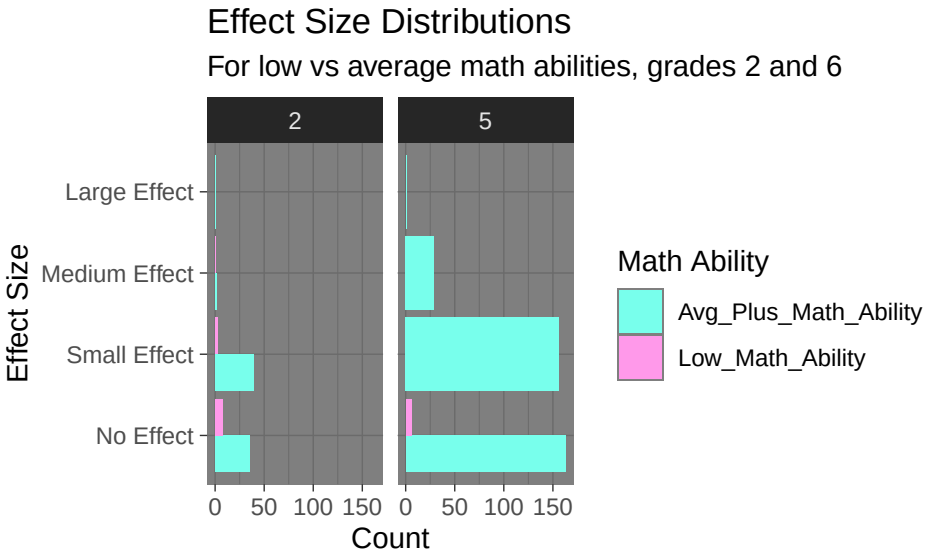


Figure 1: difference in effect size distribution for each grade. The majority of studies for grades 1, 3, 4, and 6 had small effect sizes. The majority of effect sizes for grades 2 and 5 were split between no effect and small effect. A small proportion of each grade had a medium effect size, but large effect sizes were rarely observed.



As demonstrated by figure 2, most scores in the low math ability category had no effect, though grade 2 had a meaningful number of scores in the small and medium effect categories. However, more data in the low math ability category is needed to better understand the effect size distribution.

Conclusion

There is a significantly smaller effect size for low math ability participants compared to average-above average students. This is likely impacted by the small sample sizes in these conditions. There is a less obvious (but still important) difference in effect sizes for each grade. Grade 5 has the highest number of scores for each effect size condition except “large effect”. This is likely due to its significantly higher sample size than that of the other grades.