

Greater San Diego Science and Engineering Fair

2015 PROJECT SUMMARY

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Project Title: The Impact of Age and Gender on Vocal Ranges

Objectives/Goals: The objective of this project is to find the impact of age and gender on vocal ranges.

Hypothesis: It was hypothesized that men will have higher vocal ranges than women in the 25-35 age group. The boys and girls in the 14-19 age groups will have very similar vocal ranges. The girls in the 7-9 age group will have higher vocal ranges than boys in same age group.

Methods/Materials: In this trial, people of different genders and age groups were tested. The number of people tested was 120, fifteen boys and fifteen girls in ages 7-9, ages 13-18, ages 25-35, and ages 40+. They were tested by having to sing specific notes that were played on a keyboard. They sang notes starting from C4 and sang higher and higher until they couldn't sing the notes comfortably. That final note was marked on a data table, along with their age and gender. If the subject was under 18, they were given a permission slip to get signed by their parent/guardian.

Results: The girls and the boys ages 7-9 sang between six and twelve notes (A4-G5). The girls ages 13-18 ranged between thirteen and nineteen notes (A5-G6) while the boys of this age group sang between eight and sixteen notes (A5-D6). The women 25-35 sang between eleven and seventeen notes (F5-E6), while the men sang in the range of six and twelve notes (A4-G5). 40+ women sang in the range of ten and seventeen notes (E5-E6), the men sang between two and six notes (D4-A4). Nineteen, or D6, was the highest note someone sang up to. The lowest note was 2, or D4.

Conclusions/Discussion: On average the 13-18 year old girls sang the highest. The second highest was the category women ages 25-35 and 40+ women, next, the 13-18 year old boys then the 25-35 year old men, after, the 7-8 year old boys and girls, who sang the same, and last, the 40+ men, who sang the lowest. In conclusion, the girls ages 13-18 have the highest vocal ranges and the 40+ men have the lowest.

Summary Statement: Understanding how and why a singer's vocal ranges differ can help people understand what they need to do to have a bigger, stronger and higher vocal range. It can also help people grasp parts of music better. Knowing this also gives more knowledge about how voices come out of the body, and the way they do. This project can help determine who has the highest vocal range and who has the lowest.

Help Received

Katherine Girvin, my mentor and choir director at Marshall Middle School taught me about music. My Mom helped by driving me places for testing and my Dad helped me with graphs.