

# PERCEPTION OF TIMBRE DIFFERENCES IN TRUMPETS

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## Background

Can it be verified that sophisticated listeners can perceive the timbre differences between trumpets, pitch and other variables being constant among the performances?

## Aims

It was the purpose of this study to determine whether there is justification for the various requirements for trumpet players to have more than one trumpet if transposition poses no problems.

## Method

The stimuli were recorded by a full-time professional trumpeter in the Los Angeles area. The 24 subjects were university students with trumpet as their major instrument. The taped stimuli (a 30 second excerpt from *Don Juan*), the pitch being constant while the excerpt was played twice on each of the trumpets--B-flat, C, D, E-flat, and the B-flat piccolo. The order of the trumpets used was random.

## Results

$H_0$  was "There are no significant differences to be perceived by trumpet majors (both graduate and undergraduate) in the timbres of the B-flat, C, D, E-flat, and piccolo trumpets, where tonality (the trumpeter transposes) and other musical elements remain the same." The raw data were processed to both obtain and check the  $\chi^2$  (Chi-Square for the group. The tabled value of 35.17 > 8.61 ( $P > .05$ ), indicated failure to reject  $H_0$ . For submission-- p. 2 the group, correct responses (ten possible) reflected: Accuracy = 23.7%; Mean = 2.33; Median = 2.00; Mode = 1.00 and 3.00; range = 6.00; and Standard Deviation = 5.9.

## Conclusions

Each subject in this experiment, when quizzed by the researcher, expressed confidence in his competency to identify trumpets by sound alone. This did not prove to be the case, as only one subject marked six (out of ten possible) correct responses and none marked five correct--thus, 23 of 24 subjects had less than 50% accuracy. This, along with failure to reject the null hypothesis and the information under Results (above) indicated that, under the given parameters' limitation of this study, there is no *real* validity for requiring trumpeters to have more than one trumpet, when timbre is to be the sole criterion.