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## Study Methods of College Students in Relation to Intelligence and Achievement

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of the real vocal cords, or whether they rather vibrate synchronously and more in the lateral than in the transverse direction, as was assumed before.

A. Results of the experiments with models:

1. Alternate vibration occurs only when the slit is formed by flat membranes with sharp edges; it does not occur when the slit is formed by rounded lip-shaped folds.

2. Even with the mentioned flat membranes the alternate vibration occurs only when they are fastened in an angle of about 180 degrees; it does not occur at any other angle.

3. Even if both of the mentioned conditions are fulfilled, the alternate vibration occurs only when the two membranes are out of tune, that is, when their tensions are not equal; only very thin membranes can not be tuned exactly enough, so that in this case the previously mentioned conditions are practically favorable to alternate vibration.

B. Results of the observations of the human larynx:

The vocal cords of the human larynx have not the shape of flat membranes but of rounded lips. The average angle between them is far from being 180 degrees. Even if they, by some physiological asymmetry, have not exactly the same tension, their vibrations therefore can physically not be alternate but must be synchronous.

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## STUDY METHODS OF COLLEGE STUDENTS IN RELATION TO INTELLIGENCE AND ACHIEVEMENT

NIRA M. KLISE

This paper is an account of methods used in study by approximately 500 students at Iowa State College. The questionnaire method was used, and in the paper results obtained from students in both the highest and lowest fourth of the entire group in intelligence rating, are compared.

The following are tentative conclusions as to the relation between methods of study in college and intelligence and achievement:

1. *The relation of study methods to intelligence.*

- (a) Although students in the highest fourth of the college in intelligence are six times as likely to rank in the highest fourth in scholarship as students in the lowest fourth in

intelligence, there are few, if any, startling differences between these groups in methods of study. The data indicate that success comes only through a *good method skillfully used*, and not merely because one happens to employ what superficially appears to be the same methods as another.

- (b) Of those students who have had specific instructions in how to study the least intelligent have profited most. Of the least intelligent fourth, 71% of those attaining high scholarship have had such training, while only 25% of those ranking low in scholarship have had such training.
2. *The relation of study methods and achievement.*
- (a) On the same level of intelligence the methods of study are of great importance. As a rule the students of low intelligence who were successful in college were employing good study technique.
  - (b) In general successful students employ their time to better advantage and distribute their study periods more wisely.
  - (c) As a rule successful students are more self-reliant and more resourceful.

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## PITCH PERCEPTION IN VOICE PATTERNS

MILTON F. METFESSEL

It has been known that even though the voice of a singer is constantly changing in pitch, there is only one fundamental pitch heard in any given perception. By means of a siren certain pitch and intensity patterns of the voice have been duplicated and the approximate position in the pattern of the one pitch heard has been determined. It has been found that when there is a regular rise and fall of pitch at a rate of six times per second and with an extent of one-half of a tone, the pitch heard is the mean. If the voice pattern consists of a synchronous rise and fall of pitch and intensity, there is a slight sharpening of the tone from the mean of the pitch pattern. When pitch and intensity are opposite in relationship the effect is the reverse.

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