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## Pitch Perception in Voice Patterns

Milton F. Metfessel  
*State University of Iowa*

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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.

IOWA STATE COLLEGE,  
AMES, IOWA.

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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.

STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.