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**ABSTRACT**

The purposes of this study were to examine the degree of comprehension shown by a group of college students when listening to a lecture at the normal rate of 175 words per minute and at the time-compressed rate of 275 words per minute for forty minutes, and to assess students' attitudes toward the new medium of time-compressed speech by means of a questionnaire. Standard deviations were stable and time-compressed comprehension scores showed losses that were significant at the .01 level. Nine conclusions were drawn from the study. Student responses on the questionnaire indicated that they preferred the normal rate of speech. It was decided that time-compressed speech as an educational medium needs further study. (RB)

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COMPREHENSION AND OPINIONS BY COLLEGE STUDENTS  
OF TIME-COMPRESSED LECTURES

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ABSTRACT

COMPREHENSION AND OPINIONS BY COLLEGE STUDENTS  
OF TIME-COMPRESSED LECTURES

Problem

Time-compressed speech has been suggested as an educational medium for sighted and blind students. Researchers have reported high comprehension of short, unrelated passages. One-hour lectures were used for this study since they were considered to correspond more realistically to college level tasks.

Method

A repeated measurement design was used in presenting equated lectures to 200 students at 175 and 275 words per minute. Mean comprehension scores, standard deviations, t-tests and percentiles were used to analyze the data. A questionnaire elicited responses concerning fatigue, anxiety, tension, and rate preference.

Data

Standard deviations were stable. Time-compressed comprehension scores showed losses that were significant at the .01 level. Rate was statistically significant. Questionnaire responses indicated the normal rate as more desirable.

**Conclusions**

The Fairbanks efficiency index is questioned. Time-compressed speech as an educational medium needs further study. Limited possibilities are given.

### Problem

The purposes of this study were: (1) to examine the degree of comprehension that was shown by a group of college students when listening to a one-hour lecture of educational materials at the normal rate of speech, 175 words per minute (wpm), as compared with the degree of comprehension that was shown by the same group of college students when listening to an equated one-hour lecture at a time-compressed rate of 275 wpm for forty minutes; (2) to assess by means of a questionnaire, the physical and psychological reactions of the listeners during the two listening conditions, as well as their attitudes toward the new medium.<sup>1</sup>

Time-compressed speech refers to recorded speech which has been altered in time. Fairbanks, Everitt and Jaeger, in 1952, produced an electronic device which was capable of picking up millimeters of sound at a predetermined rate, discarding those sounds, and then abutting the remaining sounds. The result was speech recorded at any desired

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<sup>1</sup> John B. Carroll, Language and Thought (Englewood Cliffs, N.J.: Prentice-Hall, 1964) has suggested that syllables per minute is a better measure of rate. As noted under Stimulus Materials, the number of syllables per 100 words was one of the criteria used in the equating of the lectures used for this study.

rate without the loss of any one complete phoneme, continuity, or the original pitch and vocal quality.<sup>1</sup>

#### Related Research

In order to test comprehension of time-compressed speech, Fairbanks, Guttman and Miron composed two factual passages, each over 1500 words in length. They reported that at 282 wpm "the response was slightly less than 90%" of the response at 141 wpm.<sup>2</sup> Encouraged by such results, time-compressed speech was then given serious consideration as a useful medium in the education of the blind as well as the sighted, and research in its use was supported by the Office of Education.<sup>3</sup>

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<sup>1</sup>Leslie H. Cramer, "An Introduction to Speech Compression Techniques: The Early Development of Speech Time Compression Concept and Technology," Proceedings of the Second Louisville Conference on Rate and/or Frequency-Controlled Speech (Louisville: University of Louisville, 1971), pp. 6-20.

<sup>2</sup>Grant Fairbanks, Newman Guttman, and Murray S. Miron, "Effects of Time Compression upon the Comprehension of Connected Speech," Journal of Speech and Hearing Disorders, XXII (March, 1957), 18.

<sup>3</sup>Emerson Foulke and Thomas Sticht, "A Review of Research on the Intelligibility and Comprehension of Accelerated Speech," The Comprehension of Rapid Speech by the Blind: Part III, ed. by Emerson Foulke (Non-Visual Perceptual Systems Laboratory, Louisville: University of Louisville, 1969); Herbert L. Friedman, David B. Orr, and Cynthia N. Graae, Further Research on Speeded Speech as an Educational Medium, Final report, Parts 1-5, July 1965-September 1967 (Silver Spring, Md.: American Institutes for Research in Behavioral Sciences, Project No. 5-0801, Grant No. OE 7-48-7670-267, U.S. Department of Health, Education and Welfare, Office of Education).