

The Use and Acceptance of Compressed Speech by Nursing Students

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Early in 1978, the Listening Center, an administrative unit of the Ohio State University that operates three instructional materials centers and a campus wide DAIRS¹, acquired several speech compressors.² These were the first speech compression units available for general use at Ohio State, thus the authors felt that an exploratory study should be undertaken to determine their usefulness and acceptance by students. The Office of Instructional Development in the Teaching Aids Laboratory cooperated with the Listening Center to design such a study, undertaken during Spring Quarter 1978.

The sophomore level program in the School of Nursing agreed to cooperate in the study because it has used audiotapes extensively in its undergraduate curriculum for the past nine years. The faculty has felt that students must have a variety of learning resources available to them, in order to be able to learn in the manner which best accomodates their learning style.³

Furthermore, the faculty believes that it is necessary for students to be able to identify their own learning needs and to utilize various resources at their convenience.⁴ With the addition of audiotapes,, students have the freedom to use their own initiative in learning and the responsibility to select and use the resources that meet their needs. And the availability of these audiotapes at various speeds provides nursing students with the means to accomodate their own learning rates and the opportunity to save time.

In surveys of student reaction to compressed speech, there is the frequent suggestion that it would be more desirable for the listener to control the rate of compression (Challis, 1975). However, regardless of how desirable this is, it would be expensive for large enrollment courses and logistically difficult on a large campus. The availability of the DAIRS provides the opportunity to present multiple rates of compression on different channels, thereby giving students convenient if not instant control over the compression. The DAIRS also solves the problems of large enrollments and geographically diverse study locations. Additionally, the authors are aware of only a few studies of compressed speech using DAIRS and therefore wanted to replicate some aspects of those studies (Boyle, 1971; Primrose, 1975).

Numerous research studies have established that speech compression is an effective and efficient tool for learning (Foulke, 1971). Generally, these studies have arrived at three major conclusions. First, there is a substantial saving of time for students using compressed speech. Second, most studies have not shown a significant difference in achievement between students learning from normal or from compressed speech. An exception was found by Short (1975), who indicated that students using variable speech compressors scored significantly higher on posttest and saved time when compared with students using normal speed recorders. Third, the majority of students using compressed speech have liked it. These results have held true for education at all age levels, in audio-tutorial systems (Challis, 1975) and specifically in medical education (Boyle, 1971).

In designing the study, the authors determined that a learning effectiveness study could not be conducted, because they did not have control over which students would use the tapes. Moreover, students would have access to some of the subject matter through other formats. As a result, the study was designed to offer the different compression rates to students, and to allow them to choose the rate(s) they preferred, rather than to assign students to treatment/control groups. With the cooperation of the Sophomore Nursing coordinator, the Listening Center committed nine DAIRS channels to the study. At any give time, students were able to listen to three audiotape titles, each title offered at the normal rate, at 80% and at 60% of the original length.

At the beginning of Spring Quarter, students were given scheduling information, which briefly described the nature and potential value of compressed speech to their studies, disclosed the dates and channels through which each title and rates were offered, and sought student cooperation in evaluating the medium. Thus, students were free to experiment on their own, to dial the rate(s) they preferred. When the audiotape assignments were completed, the total calls received by each rate's channels were monitored. In addition, because students were able to request tapes not currently played, records were kept, by title and preferred rate, of their selections. Finally the authors gauged student usage and acceptance of compressed speech through a questionnaire.

In reviewing the dial access calls, one observes that the total calls received by the normal rate channels exceed those of the compressed rate channels:

RATE	Normal	80%	60%
TOTAL	423	207	132

Students also showed a preference for the normal rate, when requesting to hear audiotapes not currently played:

RATE	Normal	80%	60%
TOTAL	40	22	7

Parenthetically, the authors compared usage per student of the tapes during this study with usage from Spring 1977, and found an increase during Spring 1978:

Spring 1977	Spring 1978
1.44 uses/student	1.89 uses/student

Perhaps the introduction of compressed tapes into their studies inspired some non-listeners toward learning through audiotapes, while encouraging those regular listeners, who might have listened to a title only once, to review the material through a compressed tape.

The responses to the questionnaire offer a more detailed illustration of student acceptance and use of compressed speech than can be offered by dial access totals alone. While 187 questionnaires were completed and returned, only 99 were studied to determine usage and preference. These represent responses from students who had listened to at least one compression rate during their Spring Quarter studies, as opposed to those students who used only the normal rate channels or did not listen to the tapes at all.

The first questions surveyed student opinion of compressed speech and its use. These findings are summarized as follows:

- a) While a majority of students would select a compressed rate recording as a primary means of acquiring information, a greater number would select compressed speech as a means of review. (Questions #1, #2, and #8)
- b) As to whether compressed speech allows more time to study other subjects, more students agreed with this notion than disagreed; more than a quarter of the students were undecided. (#10)
- c) Most students felt that lecture tapes should be available in a compressed mode, yet a smaller number would like to take other courses utilizing compressed speech. (#3 and #5)
- d) Most students would be more comfortable learning from tapes compressed to 80% rather than to 60%. (#6 and #7)
- e) A slight majority maintained that a student can advance to higher compression rates after listening to compressed speech for a while; an almost equal number indicated that listening to compressed tapes does not keep one's anxiety level too high. (#4 and #9)

As to the manner in which the audio tapes were actually used during the study, Question #11 indicates that most students took notes while completing their tape assignments. In addition, most either started listening at the normal rate and switched to a compressed rate, or used all rates at different times. Only fifteen students specified that they started at a compressed rate and switched to the normal. When asked which rate they preferred, again the majority favored compressed tapes, with a clear preference for 80%.

The last question required students to specify whether they liked or disliked compressed speech, allowing space for their comments. Of the 99 students, sixty-seven indicated that they liked compressed speech, offering the following reasons:

- 1) it saved time (27),
- 2) it offered a good means of review (18),
- 3) compressed audiotape forced them to be more attentive to what they were hearing (7),
- 4) compressed tapes were less boring than their corresponding normal rate tapes. (12).

One individual listened initially to a tape compressed to 80%, then used 60% for review. Another dialed the compressed channels as a means to "scan" the tape contents, to decide whether the contents required either listening to a slower rate or reading the tape script, on reserve in the library.

Fifteen students indicated a dislike for compressed speech, leaving seventeen expressing no opinion at all. Of the negative comments, the one most often expressed suggested that compressed speech made note taking difficult. On the whole, these students felt that the compressed tapes were too fast to understand, that they needed more time to absorb the information, and that they did not have time to get used to the compressed rate.

Furthermore, the authors reviewed the questionnaires of the non-users of compressed speech, to determine their reasons for avoiding its use. Those who dialed only the normal rate channels assumed that the compressed tapes were too fast to comprehend and again, that they would make note taking difficult. Others commented that they did not feel the need to use compressed speech. The remainder of this sample did not incorporate audiotapes in their studies, arguing that they did not enjoy learning from audiotapes, preferring instead to acquire the material from the tape scripts in the library. One student avoided using the Dial Access System, as it did not offer rewind/review functions.

In summary, the authors observed that the channels offering the normal rate audiotapes received the majority of dial calls. However, of the questionnaires returned, the majority of those who had listened regularly to compressed tapes indicated that they liked compressed speech. This group preferred the tapes compressed to 80% and their use offered students a saving of time and a means of reviewing material previously learned. These findings suggest that the study has not rendered an accurate picture of the use and acceptance of compressed speech by sophomore level nursing students and that another investigation should be undertaken.

At the time of this writing, the authors are replicating this study during Autumn Quarter 1978. Again, the option to listen to the compressed audiotapes has been presented to the sophomore level of the

School of Nursing. However, this sample is comprised of first year students in nursing, the majority of whom have not utilized audiotapes in previous courses at Ohio State. During the first study, the option to listen to compressed tapes was offered to students after two quarters of nursing studies, which offered normal rate audiotapes exclusively. Consequently, they may have already identified their own learning needs and the best resources to accommodate them, resulting in either a reliance on normal rate tapes or a rejection of audiotapes as a learning mode.

In addition, the authors met with the sophomore level as a group, during their orientation to the School of Nursing. At that time, they discussed the completion of audiotape assignments through the DAIRS and demonstrated the procedures for dialing the channels. Prior to this, nursing students were oriented to the Listening Center's DAIRS through printed orientation materials. Moreover, the group heard samples of an audiotape title in the three speeds. In this second study, the students' prior lack of experience with audiotapes and the manner in which their availability was introduced to the sophomore nursing students may result in greater usage of the compressed tapes and a general acceptance of the medium by a larger number of students.

By cooperating in the studies, the faculty of the School of Nursing hoped to identify other resources to accommodate the learning needs of its students. If the result of the second study indicate that a substantial number of students used compressed audiotapes and that their use facilitates their learning, the faculty will continue to incorporate compressed audiotapes in the nursing curriculum.

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¹ DAIRS is the acronym for "Dial Access Information Retrieval System, a computer controlled system which transmits audio and video programs to individuals in remote areas on or off campus. Programs available on the DAIRS are accessed through three-digit channel numbers.

² The technology of speech compression is an electronic method of deleting portions of recorded speech while maintaining good fidelity and without changing the pitch, hence a saving of time and a potential increase in attention in the listener.

³ "Report for Continuing Accreditation, National League for Nursing," the Ohio State University School of Nursing, Columbus, Ohio, 1975, p. 76.

⁴ "Introduction to the Sophomore Year," The Ohio State University School of Nursing, Columbus, Ohio, 1971.

QUESTIONNAIRE

This questionnaire has been designed to provide feedback as to how you feel about obtaining information in your learning process through the use of Speech Compression. You are asked to respond to the first ten statements by circling one of the five choices opposite each statement. The letters mean:

SA—Strongly Agree A—Agree U—Undecided D—Disagree
SD—Strongly Disagree

1. If given the opportunity, I feel that students will select compressed rate over normal rate speech recordings as a primary means of acquiring subject information.

SA	A	U	D	SD
(20)	(36)	(13)	(26)	(4)

2. I believe most students would use compressed speech for reviewing material previously learned.

SA	A	U	D	SD
(48)	(38)	(7)	(5)	(1)

3. I believe that all lecture type presentations recorded on audiotape should be available to students for use in the compressed speech mode.

SA	A	U	D	SD
(40)	(47)	(8)	(4)	(0)

4. I think that after listening to compressed speech for a while, a person can advance to increasingly higher compression rates.

SA	A	U	D	SD
(13)	(40)	(33)	(13)	(0)

5. I would like to take other courses which use compressed speech.

SA	A	U	D	SD
(15)	(40)	(26)	(16)	(2)

6. I believe that most students, with a little practice, would feel comfortable learning from tapes compressed to 80%.

SA	A	U	D	SD
(14)	(38)	(29)	(16)	(2)

7. I would say that most students would feel comfortable learning from tapes compressed to 60%.

SA	A	U	D	SD
(6)	(29)	(29)	(3)	(5)

8. I think many students who would not use compressed speech as a primary source of subject information would use it as a means of review.

SA	A	U	D	SD
(33)	(55)	(7)	(4)	(0)

9. I feel that trying to learn by listening to compressed speech keeps a student's anxiety level too high to be a good means for learning.
- | | | | | |
|-----|------|------|------|-----|
| SA | A | U | D | SD |
| (4) | (22) | (19) | (47) | (7) |
10. I feel that listening to compressed speech allows a student more time to study other subjects.
- | | | | | |
|------|------|------|------|-----|
| SA | A | U | D | SD |
| (15) | (30) | (28) | (22) | (4) |
11. I took notes while listening to audiotapes. Yes 89 No 11
12. The rate I preferred was 100% 22 80% 58 60% 21
13. In listening to the audiotapes:
- 47 I started at the normal rate and switched to a compressed rate.
- 15 I started at a compressed rate and switched to the normal rate.
- 32 I used all compression rates at different times.
14. I (liked/did not like) listening to compressed speech because:
- | | | |
|-------|----------|-------------|
| liked | disliked | no response |
| 67 | 15 | 17 |

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