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PERCEIVED VERSUS MEASURED COMMUNICATION SKILLS OF HEARING IMPAIRED COLLEGE STUDENTS

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This study examined hearing impaired college students' self ratings of their skill in several communication modes and compared their self-ratings to their performance as measured by objectively scored communication tests. In this way, the study examined the accuracy of self-ratings of communication skills. It also investigated the extent that accuracy improved during the students' first few weeks at college. During a pre-college summer program students were enrolled in an introductory communication course.

MOTIVATIONAL SIGNIFICANCE OF SELF-EVALUATIONS

Self-estimations of skill are important because they influence persistence, effort, and attention (Covington and Beery, 1976; Battle, 1965). In turn, these factors partly determine how skillfully people perform a task and how much they learn from performing it (Walberg and Uguroglu, 1980). Brim (1965) and Uguroglu and Walberg (1979) conducted extensive reviews of the motivational research in education and concluded that students' self-evaluations clearly affect academic performance. Positive evaluations of skill increase the likelihood of persistence at a task, while negative self-evaluations decrease the likelihood of persistence (Battle, 1965). In regard to hearing impaired students, Subtelný (1982) has suggested that students who believe they have good speech may be more likely to devote the necessary effort to improve their speech than those who believe they have poor speech.

Being *realistic* about one's skills also has important motivational implications. When individuals overestimate their skill, they are likely to attempt a task that is too difficult and become frustrated and fail. On the other hand, if individuals underestimate their skill, they may avoid opportunities in which they can be successful (Jones, 1977). For self-perceptions

of skills to be appropriately motivating, it is important that they be relatively accurate.

For hearing impaired students, accurate perceptions of their own communication skills are particularly important. These perceptions may influence effort and persistence in communication training and in everyday communication, especially with normally hearing persons.

However, distorted perceptions of communication skills can easily occur among hearing impaired persons. Subtelný (1982) reviewed studies by Libbey (1978) and by Jensenema, Karchmer, and Trybus (1978) and suggested that the self-perceptions of speech intelligibility of hearing impaired adolescents were at a different level than were the judgments of teachers of the hearing impaired. One possible source of distortion in self-perception would be the wide range of reactions by different individuals to speech of hearing impaired persons. Parents and teachers with considerable experience in listening to speech of hearing impaired children may convey to them an impression that their speech is intelligible. On the other hand, individuals without experience in listening to such speech may not understand it. In addition, the fact that acquiring speech and language is a prolonged, frustrating experience for many hearing impaired people may also distort the accuracy of their perceptions of their own communication skills (Furth, 1970).

CHANGES IN SELF-PERCEPTIONS OF COMMUNICATION SKILLS

The study was conducted in the context of an introductory communication course for students during their first few weeks at the National Technical Institute for the Deaf (NTID). Students might change their own perceptions of their communication skills during the course for at least four reasons: (a) Their thinking about communication may have become more conscious through gaining a general knowledge

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about communication; (b) they were taught a formal set of standards, in the form of a communication profile, for evaluation of their own communication skills; (c) they were given a battery of communication tests, without being given the results; and (d) they were placed in a situation where they could informally compare their own abilities to those of their peers. Research with normally hearing students suggests that each of these factors could change self-estimates of skill (Jones, 1977). To our knowledge, however, no studies have been conducted to demonstrate an increase of self-rating accuracy with hearing impaired students.

Published information on hearing impaired individuals' perceptions of their own communication skills is quite limited (Provonost, 1978; Subtelny, 1982). The area that has received the most attention is that on the relationship between self-report instruments and audiological measures in the assessment of hearing loss (Oyer, 1979; Giolas, Owens, Lamb & Schubert, 1979). One of the few studies that included self-reports of communication skills other than hearing was conducted by Libbey (1978; Pronovost, 1978). Libbey found that of the 142 hearing impaired adolescents surveyed, 20% stated that "people understand all my speech", and 39% stated that people "understand most of my speech". In another study, Subtelny (Note 1, Subtelny, 1982) found that students who assigned themselves high ratings for speech intelligibility also generally received high ratings for intelligibility from clinicians who had made judgments of their speech.

OBJECTIVES OF THE STUDY

This study addressed two questions about the accuracy of students' perceptions:

1. How accurately do students rate their communication skills?
2. Does an introductory communication course increase students' accuracy in rating their communication skills?

METHOD

Objectively Scored Communication Tests

Two hundred fifty NTID freshman participated in this study. The students were all in their first year and enrolled in a five-week course entitled "Introduction to Communication". Their average puretone threshold in the speech range for the better ear was 93.1 dB

($SD = 14.97$).

A measure of students' performance in each of eight communication modes was obtained from a battery of tests given to all incoming NTID students. The tests were developed and refined over several years of use at NTID. A brief description of these tests and the mean scores that the students in the study obtained on them are presented below:

1. **Reading comprehension:** Students took a standardized reading test, the California Reading Test (Junior High Level). Items included comprehension questions about written text, questions about reading skills and strategies, and questions which required following written directions. The students' mean grade-equivalent score on this test was 8.83 ($SD = 1.31$).

2. **Writing intelligibility:** Students viewed a short cartoon episode on a silent videotape and wrote a composition about the episode. Scores were assigned to each sentence on a scale of 1 to 10 according to the severity of any grammatical anomalies that were present. The mean score was 8.16 ($SD = 1.07$), and this mean was at a level where most of the written message could be clearly understood (Crandall, Note 1).

3. **Audition:** Students were required to listen to and recognize selected spondaic words and also sentences from the Everyday Sentence List of the Central Institute for the Deaf. A five-point rating system was used to summarize students' performance on the word list and the sentences. The mean score was 2.93 ($SD = .92$). Students with that mean score achieved a 50% recognition level on the word list and 0-48% correct identification of key words in the Sentences.

4. **Speechreading with sound:** Students viewed a videotape of a person saying sentences (with sound) from the Everyday Sentence List, and then wrote out the sentences. (For this and other tests with the Everyday Sentence List, scores were obtained by counting the number of key words written correctly.) The mean percent correct was 47.7 ($SD = 20.4$).

5. **Speechreading without sound:** Students viewed a silent videotape of a person saying sentences from the Everyday Sentence List and were required to write out the sentences ($M = 36.47$, $SD = 16.83$).

6. **Manual communication reception:** Students viewed a videotape of a person signing sentences (without speech) from the Everyday

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Sentence List and were required to write out the sentences. Scores were obtained by counting the number of key words written ($M = 64.39$, $SD = 25.40$).

7. **Simultaneous communication reception:** Students viewed a videotape of a person signing and saying sentences from the Everyday Sentence List and were required to write out the sentences ($M = 81.44$, $SD = 53.88$).

8. **Speech intelligibility:** Students were recorded on tape while reading a standard written passage. Trained listeners evaluated the recording and rated the students' speech intelligibility on a scale of 1-5. This was the only test utilizing raters to obtain a score. Studies indicated a high inter-rater reliability. The mean score was 3.33 ($SD = 1.14$) and this mean was at level where a listener could understand, with difficulty, about half of the message.

More detailed descriptions of the tests, the scoring, and examples of test items can be found in Johnson (1976).

Self-Ratings of Communication Skills

On the first and last days of the introductory communication course, students were administered a questionnaire asking them to rate their skill in the eight communication modes: (a) reading, (b) writing, (c) audition without speechreading, (d) speechreading with sound, (e) speechreading without sound, (f) speech intelligibility, (g) reception of manual communication, (h) reception of simultaneous communication. The self-rating items were in the form of statements followed by five choices, for example, "When I read, I understand: (a) everything, (b) almost everything, (c) about half, (d) a few words, (e) nothing." Items in the questionnaire included skill level descriptors consistent with the content of the eight objectively scored communication tests that were described previously.

Description of Course: Introduction to Communication.

It is appropriate to briefly describe the course, "Introduction to Communication" that provided the context for this study because some of the instruction in the course may have influenced students' self-ratings of their communication skills. The stated goals of the course are to help students (a) understand the communication process; (b) recognize their strengths and weaknesses in communication as determined by evaluations of their individual skills

in various communication modes; and (c) understand how NTID communication courses will help them improve their skills in communication. An important unit in this course deals with the communication profile. The communication division at NTID uses the profile to evaluate relative strengths and weaknesses of students across various communication modes. In addition, the course provides information on speech production, audition, manual language, simultaneous communication, etc.

RESULTS

To answer the questions about accuracy of the self-ratings of communication skills and about the changes in accuracy from the beginning to the end of the course, analyses of variance and correlational analyses were performed on the data.

TABLE 1
Mean Self-Ratings of Skill for Eight Communication Modes as a Function of Level of Performance Communication Tests and Time of Self-Rating

Communication Mode Level ^a	Actual Performance	n	Self-Rating of Skill ^b	
			Pre-course	Post-course
Reading Comprehension	High	86	3.92	4.23
	Medium	92	3.77	3.59
	Low	73	3.72	3.64
Writing Intelligibility	High	91	4.25	3.82
	Medium	69	4.22	4.13
	Low	86	4.24	4.36
Audition without Speechreading	High	39	2.90	3.56
	Medium	92	2.51	2.75
	Low	104	2.45	2.01
Speechreading with Sound	High	76	4.00	4.43
	Medium	79	3.77	3.82
	Low	80	3.50	3.05
Speechreading without Sound	High	82	3.31	3.34
	Medium	81	3.15	3.31
	Low	80	3.30	2.65
Speech Intelligibility	High	73	4.03	4.41
	Medium	93	3.65	3.58
	Low	89	3.47	2.78
Manual Reception	High	80	3.59	4.23
	Medium	85	3.60	3.81
	Low	85	2.99	2.55
Simultaneous Reception	High	86	4.19	4.35
	Medium	77	4.10	4.42
	Low	85	4.11	3.95

^aAs measured by objectively scored communication test.

^bRange of rating scale was 1 (lowest) to 5 (highest).

Students were divided into three groups for each communication mode, according to whether

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their measured performance level in that mode was high, medium, or low. An attempt was made to divide the distribution of students at naturally occurring breaking points and to group roughly one third of the students in each level. Means of student self-ratings of communication skill for each of the eight communication modes are reported in Table 1. These means are broken down by (a) performance-level grouping (high, medium, and low) according to the objectively scored tests and (b) by the time of the self-rating (beginning vs. end of the course).

Each of the eight self-ratings were subjected to a repeated measures analysis of variance in which performance-level grouping and time of

rating were factors. This design permitted examination of the effect of skill on the objectively scored tests and of the effect of the time of self-rating (pre- vs. post-test). These analyses are shown in Table 2. The effect of performance grouping was significant for each of the communication modes. Students showing better communication skills according to the objectively scored tests, rated themselves higher than did students with poorer communication skills.

The effect of time of rating (beginning vs. end of course) was not statistically significant for any communication mode. Students did not, as an entire group, increase or decrease their self-ratings from the beginning to the end of the course.

TABLE 2
Analysis of Variance of Self-Ratings of Skill for Each of Eight Communication Modes

Communication Mode of the Self-Rating	Effect					
	Performance Level Group (L)		Time of Rating (Pre- vs. Post-) (P)		L x P Interaction	
	df	F	df	F	df	F
Reading Comprehension	2,248	14.15***	1,248	1	2,248	7.33***
Writing Intelligibility	2m243	4.95**	1,243	3.83	2,243	5.98**
Audition without Speechreading	2,232	21.38***	1,232	1.80	2,232	8.28***
Speechreading with Sound	2,232	30.88***	1,232	1	2,232	9.78***
Speechreading without Sound	2,240	10.13***	1,240	1	2,240	3.57*
Speech Intelligibility	2,252	51.98***	1,252	2.52	2,252	15.15***
Manual Reception	2,247	44.39***	1,247	2.34	2,247	11.90***
Simultaneous Reception	2,245	3.48*	1,245	2.13	2,245	3.35*

* $p < .05$. ** $p < .01$. *** $p < .001$.

The most interesting result of these analyses is that the interaction between performance level grouping and time of self-rating was statistically significant for each of the eight communication modes. Inspection of the mean scores in Table 1 indicates that for seven of the modes, the interaction effect is due to the mean scores for the subjects in the high-performance group shifting upward from the beginning to the end of the course and the means for the low-performance group shifting downwards. In other words, self-ratings changed in a direction resulting in a closer correspondence to the skill level indicated by the communication tests.

The single exception to this pattern of increasingly accurate self-ratings was for writing. For writing the mean scores for subjects in the high performance group shifted downward and those for the low-performance group shifted upwards. One factor that may have contributed

to the different pattern of results here is that the initial ratings for writing were higher than for the other seven communication modes.

In order to explore further the relationship between self-ratings and communication test scores, separate correlations between these measures were computed for the beginning and the end of the course. These correlations are presented in Table. 3. For each of the eight communication modes the correlation between the self-rating and the test score increased markedly from the beginning to the end of the course. It is clear that by the end of the course, the self-ratings of communication skill more accurately reflected performance on the objectively scored tests. These correlational results are consistent with those for the analyses of variance. Both sets of results suggest that the majority of changes in students' self-ratings were in a direction that led to a closer match

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with the individual's test scores.

TABLE 3
Pearson Correlation Coefficients of Perceived vs. Measured Skills (Total Group)

Communication Mode	Pre-Course Correlation		Post-Course Correlation	
	r	p	r	p
Reading Comprehension	.13	.02	.46	.001
Writing Intelligibility	.00	—	.32	.001
Audition without Speechreading	.08	—	.43	.001
Speechreading with Sound	.18	.004	.56	.001
Speechreading without Sound	.09	—	.33	.001
Speech Intelligibility	.21	.001	.66	.001
Manual Reception	.21	.001	.67	.001
Simultaneous Reception	.00	—	.27	.001

DISCUSSION

The results of this study suggest that by deliberately teaching students about different modes of communication and helping them to assess their own communication skills, it is possible to increase the accuracy of their perceptions. Although not all the changes in self-perceptions can be attributed to the introductory communication course, it appeared to be a major factor. Other factors that may have contributed to the changes were the experiences of taking the various tests and of interacting with peers during the pre-college summer pro-

gram. For example, many students entering NTID come from educational environments where they have been among the highest achieving deaf students with better than average communication skills. Upon arriving at NTID they may, for the first time in their lives, find themselves below average in some areas. Such a phenomenon could explain the downward trend of the self ratings for the students with lower performances. It would not appear to explain the upward trend for the better performing students. Further work is needed to evaluate the extent each of these factors contributes to changes in self-perceptions.

It is important to continue this program of research because development of accurate perceptions on one's own communication skills is an important educational goal for hearing-impaired students. When students know their own communication skills, they may make more realistic judgments about the benefit of further communication training and establish more appropriate expectations for their own improvement. Furthermore, the work by Covington and Berry (1976) and by Subtelný (1982) suggest that when students establish realistic expectations for themselves about improvement, they will be more motivated during communication training. Accurate self-perception of communication skills may also help hearing-impaired individuals make appropriate decisions about participating in the communication opportunities of everyday life.

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FOOTNOTE

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