JOB RELATED SPEECH AND LANGUAGE TRAINING

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An important factor in the success of the NTID student in his chosen technical field is his ability to recognize, pronounce and use new and unfamiliar words. It is for this reason that courses in Pronunciation and Technical Communication were developed. *Pronunciation I and II** help the student develop the necessary skills to pronounce and use new and familiar words through training in diacriticals and pronunciation rules. *Technical Communication* reinforces these skills by adding instruction in word analysis and expanding functional and technical vocabularies related to major programs at NTID.

To determine student needs for this course, a screening test was administered randomly to 150 incoming NTID students (Summer, 1974). The test consisted of twenty items and was divided into four parts, each assessing a different word analysis skill. The results of the test were analyzed by content area. The following mean percentages for correct responses were derived:

1. Determination of dictionary entry words - 20.2%
2. Use of contextual clues to determine meaning - 53.2%
3. Prefix recognition - 75.8%
4. Synonym usage - 42.4%

Figure 1 demonstrates the mean scores for the four skill areas tested.

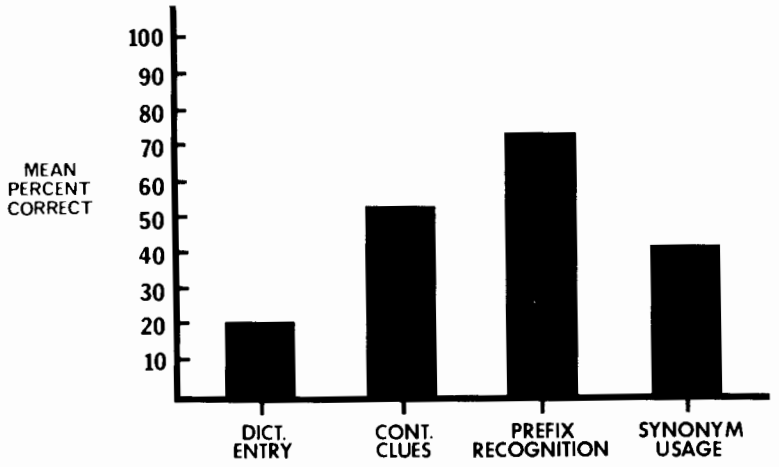

Figure 1. Means for four skill areas measured by screening test (N = 48 students entering NTID Summer, 1973)

*See Marilyn Nutter's paper, *"Development of Pronunciation Skills"*, for a description of content material in Pronunciation I and II.

In the first content area tested, dictionary entry words, a problem arose because 117 of the 120 students who answered incorrectly, did so because they did not understand the question.

Of those 150 students taking the screening test, 87% failed to achieve a passing score of 75. The mean score for the group was 48%. These data indicate that many NTID students need improvement in word analysis skills to assist them in understanding the many new and complex words they encounter in social and technical situations.

TECHNICAL COMMUNICATION is, therefore, offered each quarter to students on the basis of need. The instuctional setting is a class of no more than six students. The student will ordinarily take *Pronunciation I and/or II* before *Technical Communication* but this prerequisite may be waived if the student demonstrates sufficient knowledge in pronunciation skills. Two pretests are administered to registered students. The first test measures the student's word analysis ability. The second test measures the student's current vocabulary in his chosen technical field. Post tests are given at the end of the course. Results are analyzed by content area and compared to the pretest as one method of determining progress. Short quizzes are also given at the end of each area covered.

The course is divided into six main areas. The first topic is a detailed study of recognition and correct use of Latin and Greek prefixes, roots and derivations. This knowledge is especially important in the formulation of technical vocabularies. If a student can learn that *non*-means not or that *toxicus* means poison, he has a better chance of guessing the meaning of "non-toxic." The prefix or root is introduced in a variety of words and simple sentence patterns. Students practice auditory and visual recognition of the word and receive extensive oral instruction within appropriate language context. In addition to classroom discussion and homework, students also use the Computer Assisted Instruction course entitled *PREFX* which covers 63 Latin prefixes in two hours of instruction. This combination of instructional modes has proven to be effective.

The second topic introduces commonly used suffixes. Often, if a student can identify word endings, he can tell if a word is a verb or a noun, singular or plural, or if it has, is or will happen. Included in this unit is an important and useful exercise entitled "People and Occupations". This segment drills common confusions such as photography, photographer, and photograph in functional language units.

The third topic is the correct use of synonyms and antonyms. Many times, if a student cannot remember or recognize a technical word, he may remember a synonym for the word. An electronics student writing a technical report may not remember the term "terminal connection" but he may remember a simpler synonym such as "plug", "socket", or "jack". Antonyms also may give the student a clue about the meaning of a confusing sentence or phrase.

Fourth, students in *Technical Communication* are taught how to de-

termine dictionary entry words. Unknown words often seem more difficult with the addition of prefixes, suffixes and changes in verb form. The word "demagnetized" is a good example. If the student sees this word for the first time, he may not find it in the dictionary; but, if he knows that *de-* is a Latin prefix and that *-ed* is a post tense verb ending, he can more easily look up the word or guess it's meaning.

Fifth, students are taught methods to determine the meaning of a word by its position and use in a sentence. Consider the sentence: "They took shovels, axes and other implements into the mine". The student may not know the word "implements", but he knows that shovels and axes are tools and with the addition of the word "other" the student can easily guess the meaning of "implements" in this sentence.

The sixth and last area concentrates on the building and reinforcement of the pronunciation and usage of a selected vocabulary in the student's major technical area. To accomplish this, each of ten major departments submitted a list of approximately 100 words commonly used in their fields. These words were then written in *Webster's* diacritical symbols, defined and used in appropriate job related sentences. After approval by the respective departments, the information was transferred to, and recorded on cards, for use in the EFI Flashcard Reader. The student uses the EFI with amplification, The word is repeated three times, is defined, and used in a sentence. In addition, students record and play back their own speech to compare it with the prerecorded model. With auditory and visual input as well as oral practice capabilities, this EFI program has been an effective means of instruction.

In order to determine the effectiveness of the course, data have been collected from the pre-post tests of 48 students over the past 5 quarters. Table 1 summarizes the pre and post test scores of these 48 students.

TABLE 1: Means, standard deviations, and t values for pre and post tests in Technical Communication (n=48)

	Pre-test	Post-test	Diff.	t
Mean	58.71	83.19	24.44	−11.718
Standard Deviation	15.20	12.83		

The mean score for the pre-test was 58.71%, with a standard deviation of 15.20. On the post-test, the mean was 83.19%, with a standard deviation of 12.83. Sixty-seven percent of the students scored below 70% on the pre-test; only 8% scored below 70% on the post-test.

Table 2 summarizes pre-post test scores for each subject area.

TABLE 2: Means for pretest and post test scores expressed in percent correct for each subject area (n=48)

Subject Area	Pre-test	Post-test	Difference
Dictionary Entry	62.92	85.42	22.50
Contextual Clues	62.08	77.50	15.42
Latin Roots	13.13	70.00	56.87
Latin Prefixes	57.92	87.92	30.00
Prefixes and Roots Used in Words	82.92	95.21	12.29
Prefixes and Roots Used in Sentences	75.21	89.79	14.58

As shown, the lowest scores (13.13%) were identified with test material relating to the understanding of Latin roots. On the pre-test, relatively good performance was noted for subject material relating to prefixes and roots used in words (82.92%).

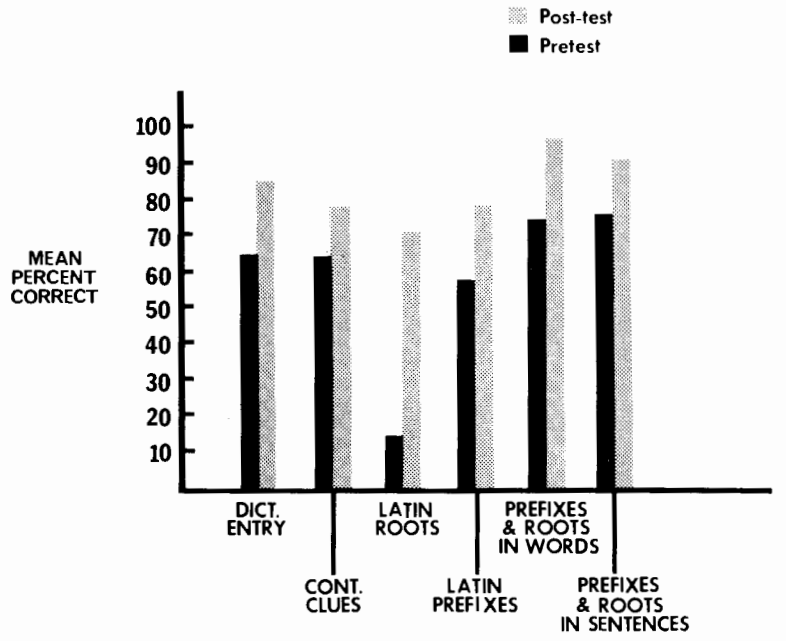

Figure 2. Means for six skill areas measured by pre and post - tests (N = 48 students entering NTID Summer, 1973)

Review of the differences between pre- and post test scores indicates the greatest degree of improvement was related to subject material dealing with Latin roots.

These data, as well as favorable comments from students and instructors, indicates the curriculum and strategies employed are effective in accomplishing the objectives of the course and in meeting the students' needs.