

Mapping vs. Matching During the Laboratory Sessions

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The value of the language laboratory as a foreign language teaching tool has long been controversial, due at least partly to the paucity of empirical studies. The present study suggests the possibility of an integrated use of the laboratory in teaching all language skills, and proposes a methodology (at odds with the traditional approach) which requires students to take a more active role in the learning process. Specifically, the usual method of presenting materials for listening practice with the aid of written scripts is compared with a format in which students listen to new materials without the help of a text. It is concluded that the students who are required to rely solely on an auditory mode in fact improve listening comprehension skills more rapidly than students who have the aid of scripts during laboratory sessions.

In order to acquire fluency in a foreign language, it is desirable that students be exposed as much as possible to an environment in which the target language is spoken. Such an environment naturally provides the challenge and motivation necessary for rapid advancement in communicative skill in the new language. When exposure to a natural target language environment is not an option, however, teaching devices which incorporate challenging procedures and motivating materials become crucial. The language laboratory when used properly can become such a powerful teaching device.

The language laboratory was first introduced in the 1920s, and was further developed during World War II for the purpose of teaching languages to personnel in the United States Armed Forces

(Paivio, 1981; Croft, 1972). Two types of laboratory use have developed in school language programs. In the "library" laboratory, each student controls the equipment he is using, and can select programs, start, stop and repeat tapes, and listen to his own responses (Croft, 1972; Taylor, 1979). In the "class" laboratory, a teacher or monitor controls every aspect of the process from a master console, and individual students simply listen through earphones and respond when necessary through a microphone. The monitor can listen or speak to any individual student or to the entire class.

The value of the language laboratory as an effective teaching tool has long been controversial, due partly to the paucity of good empirical research. Kelly (1969) argued that once the laboratory left the

hands of careful experimenters, it seemed to fail to live up to its promise. Smith (1970) reported that use of the language laboratory (twice a week in the study in question) had no significant effect on students' achievement scores, and Lambert (1971) also claimed that the laboratory contributed very little to the development of foreign language skills. As Taylor (1979) pointed out, many language teachers have abandoned the use of the language laboratory altogether, attributing students' boredom and failure to improve in listening comprehension to the laboratory itself. Obviously, the attitude that the language laboratory is only peripherally important leads to an inefficient use of the facility. Many teachers and students assume that the session in the laboratory serves merely as an ancillary activity for the practice of materials already in the classroom.

However, not only can the language laboratory be used for the presentation of new materials, it can also accommodate training in all four language skills (Farnsworth, 1974). The English Language Center at Michigan State University incorporated various skills such as vocabulary expansion, listening, sound discrimination, grammatical patterns, encoding, note-taking, summary writing, outlining and speaking into a successful laboratory program (Wu Yi So, 1974). Even without such a comprehensive use of the laboratory resource, the facility can at least allow students to hear the voices of native speakers, and can provide an efficient means for individual study and instructor feedback. It would be a mistake to dismiss the use of the language laboratory as playing only a minor role, or to abandon its use without exploring its potential more fully. The optimal use of the language for the enhancement of integrated language skills must be pursued through empirical studies.

The purpose of this study is to explore the interaction of language skills in a language laboratory course, and to determine the effect of an approach to teaching which takes that interaction seriously as a

factor in student performance. Specifically, the study gauges the effect of mixing exposure to written scripts with exposure to taped materials in a language laboratory setting. Our hypothesis is that students who are required to process new materials via an auditory mode only will in fact improve listening comprehension skills more rapidly than students who have the aid of scripts during laboratory sessions.

Method

Subjects

Subjects consisted of 64 freshmen following English Literature and English Language majors at Chung-Ang University in Seoul, Korea. These students were enrolled in two English Laboratory¹⁾ classes.

Materials

Materials consisted of 18 lessons from Intensive Course in English Intermediate, English Language Services, Inc., and accompanying pre-recorded tapes. Each student had a copy of the textbook; only teachers had access to tapes. The first ten lessons were covered for the mid-term exam and the last eight lessons for the final exam.

Procedure

Students were assigned to Laboratory English Class A or Class B in alphabetical order on the basis of their last names. Class A consisted of 34 students and Class B had 30 students. (The difference in number was due to enrollment changes after initial registration.) Both classes had 15 weeks of laboratory sessions meeting twice a week for two hours each session. The two classes were taught by two different teachers, both native Korean speakers.

1) This is a required two-credit course meeting four hours a week for freshmen majoring in English Literature and English Language.

in two separate language laboratories at the same hour.

Each lesson began with the presentation of taped listening materials followed by comprehension questions. Then students heard a dialogue and conversation which they were required to repeat. Finally they drilled pronunciation and intonation. During each presentation of taped materials, Class A students were allowed to follow the textbook, which contained a written script of the same materials. Class B students, however, were not allowed access to the textbook while listening to the tapes; they were allowed to follow the script only during a review session.

The final exam consisted of three sections: comprehension, completion and dictation. All exam materials were extracted from the original tapes. For the comprehension section, students listened twice to a series of pre-recorded paragraphs, each followed by a set of True/False questions checking comprehension. In the completion section, students received a written version of the text with certain parts omitted; they listened once to the taped passages and filled in the blanks in the written version. In the dictation section, students listened three times to 12- to 20-word taped passages and then wrote down what they heard. Both classes took the exams together in one laboratory in the presence of both teachers.

Scoring

For consistency and credibility of scoring both teachers agreed that their graduate assistant would score all exams. One student from Class B was given the minimal passing grade "D" (60%) without taking tests because of his hearing impairment.

Results

As expected, there was a significant overall difference in final listening comprehension scores between the two Laboratory English groups. Table 1 shows

that Class B students, who had no access to written scripts during auditory presentation, achieved higher mean scores than Class A students, who did use scripts throughout the laboratory class ($p < 0.005$). Meanwhile, the two groups of students received roughly equivalent scores (see Tables 2 and 3) in English²⁾ and Introduction to Linguistics³⁾ during the same semester, suggesting that both groups started with an approximately equal range of academic ability. These results indicate that the significant difference in achievement in Laboratory English can in fact be traced to the difference in teaching method.

An examination of Figure 1 shows, however, that the difference in the overall means for the two classes comes mainly from those students at the high end of the grade scale. Students in each group were divided into three categories, of high, middle and low scorers,⁴⁾ and the distribution of scores was analyzed in a 2X3 factorial design (ANOVA), the factors being category of scorer (low, middle or high) and Class (A or B). Table 4 shows that there is no significant interaction between these factors ($F(2,57) = 1.50, p < 0.20$); therefore it was possible to analyze each category of scorers in the two classes separately. Tables 5 and 6 show that there is no significant difference between Class A and Class B in the low and middle scoring categories, while the figures in Table 7 confirm the observation that there is a significant difference in high scoring categories ($p < 0.05$). Apparently the difference in teaching method affects more advanced students much more

2) This is a required three-credit course for all Chung-Ang University freshmen. The text consisted of various articles, essays, and short stories.

3) This is a required three-credit course for freshmen majoring in English Literature and English Language. *Introduction to Language* by V. Fromkin and R. Rodman was the text used.

4) Low-scorers were those who got Ds and Fs in absolute letter-grading system (below 69%), middle scorers were those who got Cs (70-79%), and high scorers were those who got As and Bs (80% or above).

Table 1. *t*-Test for Laboratory English

Class	N	M	SD	SE	MIN	MAX	<i>T</i>	df	p-VALUE
A	34	68.6	11.0	1.9	46	89	-3.1689	61.0	0.0024
B	29	78.2	13.1	2.4	60	98			

One student who had hearing impairment was excluded from this analysis.

p<0.005

Table 2. *t*-Test for Introduction to Linguistics

Class	N	M	SD	SE	MIN	MAX	<i>T</i>	df	p-VALUE
A	34	76.0	13.0	2.2	50	97	-0.1462	62.0	0.2995
B	30	79.2	11.2	2.1	60	98			

Table 3. *t*-Test for English

Class	N	M	SD	SE	MIN	MAX	<i>T</i>	df	p-VALUE	
A	34		74.8	11.8	20	53	96	-0.3911	62.0	0.6971
B	30	76	12.3	2.2	51	98				

Table 4. ANOVA Table for Interaction among Classifications, High-, Middle-, & Low-Scorers

Source	SS	df	MS	F	p
A	1449.52	1	1449.52	74.52	0.0001
B	7638.14	2	3819.07	196.35	0.0001
A × B	58.51	2	29.26	1.50	0.2309
Error	1108.69	57	19.45		

Corrected

Total 10254.86 62

Table 5. *t*-Test for Low-Scorers in Laboratory English

Class	N	M	SD	SE	MIN	MAX	<i>T</i>	df	p-VALUE
A	20	60.9	5.5	1.2	46	68	-0.2940	24.7	0.7712
B	8	61.3	1.6	0.6	60	64			

Table 6. *t*-Test for Middle-Scorers in Laboratory English

Class	N	M	SD	SE	MIN	MAX	<i>T</i>	df	p-VALUE
A	7	74.1	2.5	0.9	71	77	-0.1021	12.0	0.9204
B	7	74.3	2.8	1.0	71	78			

Table 7. *t*-Test for High-Scorers in Laboratory English

Class	N	M	SD	SE	MIN	MAX	<i>T</i>	df	p-VALUE
A	7	85.3	2.5	0.9	81	89	-2.1223	19.0	0.0472*
B	14	89.9	5.5	1.5	82	98			

* $p < 0.05$

significantly than it does the rest. The difference in teaching method has more impact on the high scorers ($p < 0.05$) than the middle or low scorers.

Discussion

A number of factors could enter into an explanation of the differences in student performance which this study reveals. On the very simplest level, we can attribute Class A students' poorer performance in listening comprehension tests to the fact that during their laboratory sessions they had to deal with input via two modalities, visual and auditory, at once. Since human attention is limited in capacity (Foss, 1969; Foss & Lynch, 1969) and therefore necessarily selective (Bransford, 1979), Class A students would doubtless try to focus on one channel only, with input from the other then becoming a form of distracting noise rather than an aid to comprehension. The fact that second language students' reading ability usually surpasses their listening comprehension (Oller, 1979) would naturally lead Class A students to focus primary attention on the written script rather than on the recorded speech; the former would simply be more familiar and hence more accessible. Class B students, with only auditory

input available for processing, would naturally focus all their attention on this one channel, thereby actually benefitting from what was supposed to be the main activity of the course: listening practice. To use Dakin's terms, Class B students were actually listening to the unfamiliar language, while Class A students were only hearing it.

Along the same lines, we could hypothesize that the availability of input via two channels for Class A students interfered with what should have been a silent period for comprehension. While both Class A and Class B students were allowed a period of time before they were required to repeat the English utterances they had heard, it could be argued that Class A students' silent period was made less useful by the continued presence of the written script. On the other hand, Class B students had a listening period during which they comprehended the meaning (the language), prior to production of any utterances in English. Studies have shown that students perform better in both comprehension and production if they had a listening period prior to production (Oller, 1983).

Even without making any claims about selective attention and limited attentional capacity, we can see that the types of tasks required of students in Class

A and Class B differ profoundly. At best, diligent Class A students would presumably attempt to match what they were hearing with what appeared in written form, leaving any interpretation of meaning to be worked in as possible. Class B students on the other hand would be encouraged by their situation to map the auditory input directly into meaning, making use in this active process of whatever pragmatic expectations that their linguistic and extralinguistic experience and the material itself might make possible (Oller, 1979). Consequently every step in the listening practice, even repeated trials, would be challenging and motivating for the Class B students. For Class A students, however, the matching activity would ordinarily be consummated on the first trial, rendering further trials under the same conditions repetitious and tedious.

Finally, the Class B students who were forced to listen for comprehension were thus given exposure to the language only in its most usefully elaborated form. The natural rhythmic structure of the language, including stress patterns, intonation contours, pauses between phrases, etc., gives clues to both structure and meaning which are simply not available in the written form. For instance while a printed script gives equal prominence to content and function words, natural speech distinguishes them for the novice listener by means of stress and intonation. Therefore it is clear that those students who were encouraged to give primary attention to these auditory clues would have a more natural access to the new language and its patterns.

The particularly marked differences in achievement between the two classes at the high end of the grade scale (see Figure 1) can be explained on the basis of the nature of the teaching materials as well as the difference in teaching method. Since listening comprehension generally lags behind reading comprehension, the written versions of the materials presented on tape were well below the reading level of high scorers. Therefore not only did these mate-

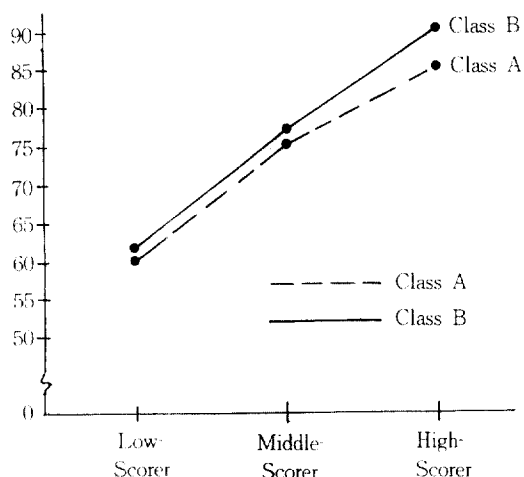


Figure 1. Means of each category of scorer from Class A and Class B.

rials distract Class A students from active listening, they also in themselves presented little or no challenge to reading ability. The matching activity discussed above would thus be the only active process available to these high scorers, and neither listening nor reading comprehension would be improved in the course of the class. Thus final achievement scores for Class A students are depressed, as no aspect of comprehension skill has been challenged. Lower scorers in the same group, however, may have at least improved their reading skills. For them the level of the difficulty of the written scripts would more nearly approximate their own reading level, and would therefore present a comprehension task with at least some measure of motivation and challenge. The lower scorers in Class A therefore may have received at least some benefit from the class (though not the intended one of increased listening comprehension), and their final scores, compared with those of Class B low scorers, reflect this.

Future study should be geared towards the integrated use of the language laboratory as a powerful and effective tool for acquiring all language skills (Farnsworth, 1974). Appropriate facilities, materials, teaching methods, and teacher efforts should function

together for the optimal use of the language laboratory. In particular methodology which puts more emphasis and focus on comprehension, the covert phenomenon of human thought, and less on production through mere repeating or drilling, should be adopted and promoted in the laboratory session (Byrnes et al., 1982). The student should be allowed to take an active role in his own learning of a second language.

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어학실험실습에서의 인지적 접목 대 기호적 결합

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외국어 교육의 통합적인 도구로써, 어학실험실의 사용가치는 오랫동안 논쟁점이 되어왔다. 특히 이 분야의 실험연구의 부족으로 인해 이러한 문제점이 제기되어 온 것도 간과할 수 없다.

본 연구는 어학실험실의 통합적인 사용가능성을 제시하며, 학습과정에서 학생들로 하여금 좀 더 적극적으로 참여하는 방법론도 아울러 제안한다. 구체적으로 말하자면, 어학실험실의 학습과정에서 교재를 보고 듣는 것과 교재의 도움없이 오로지 귀로만 듣는 방법으로 비교하였다. 비교한 결과, 교재의 도움없이 청각에만 의존한 학생들의 듣기 이해도가 교재를 보고 들은 학생들 보다 더 향상되었다.