

A Comparison of the Iranian Learners' Comprehension of the Technical Video-taped Materials and their Written Transcripts

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Abstract

This article reports on a comparison of the Iranian EST learners' comprehension of video-taped recordings and their transcripts. The population under study was divided into two groups: the Experimental Group (EG) consisted of 40 mechanical engineering students, male and female, taking their EST course at Iran University of Science and Technology, and the Control Group (CG) comprised 30 students with the same language background from Sharif University of Technology. The EG received seven four-to-seven-minute segments of video recordings, along with multiple-choice questions, in seven sessions. The CG, on the other hand, received the written transcripts of those recordings. Two tests were used to compare the performances of the sample groups:



TVLCT (Technical Video-taped Listening Comprehension Test) and TRCT (Technical Reading Comprehension Test). The results indicated that the EG performed better on TVLCT than the CG on TRCT. It seems that the students' background knowledge, as well as their previous information on the contents of those materials, was more activated via video materials. Moreover, through the employment of video materials, the students' need to understand the aural input was met, and they found their EST classes more interesting.

Keywords: Comprehension, Transcript, Background, Knowledge, Material

Introduction

Listening comprehension in second language situations is becoming an important area of study in both theory and pedagogy. However, there is a lot of work to be done in this regard. As Rivers (1981) maintained, communication is not merely achieved by speaking unless what is said is understood by another person; therefore, teaching listening comprehension is of primary importance if the goal is communication. In regard to the importance of listening in our daily life, Morely (1991) stated that listening is performed more than any other language skills in our everyday life, "twice as much as we speak, four times more than we read, and five times more than we write" (p. 82); still, this skill is taken for granted because most of the times we are not consciously aware of our performance as listeners. It has also been a frequently neglected area and probably the least stressed skill in the second/foreign language teaching (Dunkel, 1991; Gouin, 1880; Nida, 1953; Palmer, 1917; Paulston & Bruder, 1976; Rivers, 1981; Sweet, 1988).

The realization of the fact that input plays a critical role in second language acquisition was strong impetus in growing interest in listening comprehension research. Long (1985) believed that current models of second language acquisition, such as the information processing model (McLaughlin, Rossman, & McLeod, 1983), monitor model (Krashen, 1977), the intake model (Chaudron, 1985), the interaction

model (Hatch, 1983) all emphasize the central role listening comprehension plays in the second/foreign language development, especially in the early stages of language development.

The importance of listening comprehension is not limited to the beginning stages of second language acquisition; it seems to be of vital importance to advanced learners as well (Power, 1985).

Furthermore, the result of a survey conducted to find out the relative importance of listening, reading, speaking, and writing for the success of international students in academic settings indicated that the skills of listening and reading were given the highest ratings by the U.S. and Canadian professors of engineering, psychology, chemistry, computer science, English, and business (Dunkel, 1991).

With regard to the proliferation of electronic media in our contemporary life, Eric Havelock (cited in Dunkel, 1991) held that the profound impact of orality on individuals' life in contemporary society has become an accepted fact. Dunkel believed that electronic media may even cause a shift from literacy to orality in the industrialized world. This assertion is in line with the claim made by Freedman (1982) that our means of communication have been shifted slowly, but emphatically, from the printed words to images and sounds. That is to say, instead of reading books today, most people prefer to look at and listen to radio and television programs and recordings.

The shift from literacy to orality in contemporary society seems to create a "need to gain more detailed knowledge of what promotes and hinders the understanding of messages communicated in the native and second/foreign language" (Dunkel, 1991, p. 451). This need may even grow in the coming years when exploiting the computer-mediated technologies to teach foreign/second language becomes commonplace.

With respect to the use of technology in L2 teaching and learning situations, Garrett (1991) described some kinds of technological resources available to support language learning (e.g., Traditional audiotape and/or video-tape materials); she also discussed various approaches to the manipulation of them. Garrett pointed out that technology will affect the teaching of listening comprehension as well as materials



preparation in the coming years. Garrett noted that:

Learners often experience a difficult transition from hearing pedagogical audio to understanding natural spoken language; the computer and interactive technologies will allow teachers to select materials of all kinds, support them as learners' needs dictate, and use the visual options of screen presentation or the interactive capabilities of computer control to help students develop good ... listening techniques. (p. 95)

Moreover, the use of speech technology also advances the "efficiency, reliability, and validity of assessing L2 listening comprehension proficiency" (Dunkel, 1991, p. 451). Dunkel further claimed that in the future, when technology becomes more available, less expensive, and easier to use, it will play a much greater role, and that:

It is just visionary, but wise, to remain apprised of developments in instructional technology as they relate to the teaching of listening comprehension to the generations of ESL/BFL students who will be born into the postliterate societies of the 21st century. (p. 452)

On the other hand, current models of listening clearly illustrate that listening is an active and constructive process in which background knowledge is a critical component of the process (Schmidt-Rinehart, 1994). Brown and Yule (1983) used the term schema to describe "the organized background knowledge which leads us to expect or predict aspects in our interpretation of discourse" (p. 248). Therefore, schema is "the background knowledge on which the interpretation of a text depends" (Cook, 1991, p. 54); it is one of "the information sources in comprehension" (Anderson & Lynch, 1988), and the lack of such information impedes comprehension. Therefore, it seems advisable to provide students of English for Specific Purposes (ESP) with materials about which they have a reasonable background knowledge. This enables them to communicate their knowledge (Hutchinson & Water, 1984). At this point, the necessity to provide the learners with appropriate authentic materials with worthwhile content becomes quite clear.

Listening Materials

Among the listening comprehension materials, the audio materials are frequently

used. Here, learners attempt to focus their attention on what they hear and to get meaning via hearing. Ur (1984) listed various types of listening comprehension materials: (a) listening to videotaped materials, (b) listening to lectures, (c) listening to news and broadcasts, and (d) listening to taped materials through a tape-recorder. From the above-mentioned materials, tape-recorded texts have been the most frequently used in language teaching/learning situations, and among audio-visual materials, video-tapes and films have served as additional aids to comprehension. It is worth mentioning that from among the various types of materials suggested by Ur (1984), the video-taped materials were selected and used for the purposes of the present study.

In the area of ESP, where the devised materials should specifically meet the students' needs, the important issue of authenticity plays a very significant role in materials preparation. And that, "it should be possible for language-teaching profession to create video which is both authentic, in the sense that the language is not artificially constrained, and, at the same time, amenable to exploitation for language-teaching purposes" (Mac William, 1986, p. 134).

Video recordings can serve as a good instructional aid in ESP. Regular lectures and seminars (even simulated ones) can be video-recorded; if not possible, "lecturers can be invited to give lectureries in the recording studio" (Candlin, 1991, p. 62). It is believed that it would be more useful for the students to take notes while watching the recorded lectures or seminars. This enables them to discuss selected features of both lectures and seminars. Candlin advocated the use of video recordings in ESP. He viewed these recordings as being "more beneficial than audio ones because attention can be paid to gestures and body language and that information given on the blackboard, overhead projector and on slides can be captured on the recording" (p. 62).

In addition to print materials which are constantly used for ESP teaching, a rich supply of authentic video-taped recordings are also available to be used in ESP instruction. However, most of the class time is devoted to reading, and there is little motivation to do more (Candlin, 1991). The main objective of the ESP courses seems to be limited only to the improvement of the reading skills of the learners,



and the content of the written texts is likely to be discussed in the first language; besides, there is, unfortunately, almost always a tendency to translate most parts of the written texts into the first language.

There is a great number of specialized and technical video-taped recordings available to be exploited in ESP teaching and learning situations in Iran. However, they are not frequently used. Moreover, most universities—especially those located in Tehran, such as Iran University of Science and Technology (IUST) and Sharif University of Technology (SUT)—do have well-equipped laboratories with audio-visual facilities. Scant attention is, however, paid to improving the listening comprehension ability of the learners.

At this point, the important question to ask is why only print materials are employed in our ESP classes. What about the students' need to understand lectures, seminars, authentic video-taped recordings, and other aural inputs? Which one of these two—audio-visual materials or print—has more effect on ESP learners' comprehension ability? Can video-taped materials have any place in the materials produced for EST? Do EST learners comprehend better via print or via technical video-taped materials?

These questions inspired the researchers to conduct an experimental study to compare and contrast the degree of comprehension of the Iranian students, learning English for Science and Technology (EST), of the contents of technical video-taped recordings and their transcripts. In other words, the purpose of the present study was to determine whether there was any significant difference between the EST students' degree of comprehension of the contents of video-taped materials and the transcripts of those materials?

Method

Subjects

The population from which two sample groups—Audio-visual Group and Reading Group—were drawn consisted of EST students at IUST and SUT. The Audio-visual Group, labelled the Experimental Group (EG), consisted of 40 mechanical engineering students taking their EST course at IUST. The Reading Group was

selected to be the Control Group (CG) and comprised 30 mechanical engineering students who were taking their EST course at SUT. Both groups were non-English speaking students (male and female) of homogeneous nationality and linguistic background. It should be mentioned that the homogeneity of the sample groups was investigated through administering a proficiency test.

Materials

A set of tasks in the form of video-taped recordings, as well as print materials along with a number of comprehension-check exercises were designed and employed in seven sessions. The recordings were classified according to a shared area of specialization, around a series of films about related topics to provide the mechanical engineering students with opportunities for comprehension and learning about a single content area. The print materials in this study, however, were the written transcripts of the same video-taped recordings. In this way, both the EG and the CG could receive materials with the same level of difficulty. The EG received the video-taped recordings, and the CG the written transcripts of those recordings. A number of comprehension check exercises were also developed to demonstrate the degree of understanding of the subjects. The students were required to answer questions in response to what they had heard or read. It is worth mentioning that all the video-taped recordings were carefully selected and examined before being adopted for the EG. In addition, the transcripts of the video-taped recordings were carefully converted into written texts, with careful paragraphing and punctuation.

Instruments

In order to answer the research question in this study, the following tests were used. **Pre-test: the Comprehensive English Language Test (CELT).** In order to investigate the homogeneity of the sample groups, the CELT was administered in the first session. This test consists of two subsets of grammar and vocabulary, each with 75 items. Since the CELT lacked a reading comprehension subpart, four passages including twenty-four multiple-choice items were selected from the Nelson Test of Reading Comprehension and administered concurrently with grammar and



vocabulary subparts of the CELT. The moderate to high correlation coefficient between these passages and other parts of the CELT indicated that the selected passages made a quite suitable reading comprehension subset for the CELT. Table 1 reports the correlation coefficients between the components of CELT and the reading comprehension passages from Nelson.

Post-test: the Technical Video-taped Listening Comprehension Test (TVLCT). This test included a carefully-selected segment of a film, almost identical to the tasks used in the EG. It contained 12 multiple-choice questions about the text. It should be mentioned that the reliability estimated for TVLCT, according to Kuder Richardson 21 formula, was 0.57 which is a moderate reliability.

Post-test: the Technical Reading Comprehension Test (TRCT). The transcript of the same video-taped recording (TVLCT) was prepared, paragraphed, and punctuated to form a reading passage through which the reading comprehension ability of the CG could be assessed. Since the written passage of the TRCT was, in fact, the written transcript of the video-taped recording of TVLCT, both the EG and the CG received exactly the same content. The estimated reliability for TRCT, according to Kuder Richardson 21 formula, was 0.67.

Procedure

To investigate the degree of the sample groups' homogeneity, both the EG and the CG were given a proficiency test in the first session.

In each session, the EG watched short segments of a video recording (ranging from 4 to 7 minutes) three times and answered the multiple-choice items (7-10) related to it. The subjects were permitted to take notes while watching the film, if

Table 1: Correlation Coefficients between the Components of CELT and Reading Comprehension Passages Selected from Nelson

	Vocabulary	Nelson	Grammar
Vocabulary	--	.8437	.7348
Nelson	.8437	--	.6234
Grammar	.7348	.6234	--

they wished. The CG was required to read the written transcripts of the video-taped recordings to answer the questions. It should be added that both groups received seven tasks in seven sessions; each task took about thirty minutes of the instruction time. The tasks were designed to enable the EST learners to complete a series of comprehension tasks. In this way, the EG was provided with a chance to practice their listening comprehension skill via films, and the CG had a chance to practice their reading comprehension skill through written materials.

In the final session of the experiment, the EG was given the TVLCT. The TVLCT consisted of a short segment of a video recording. The subjects watched the recording three times and answered the twelve questions in twenty-four minutes. The students were allowed to take notes while watching the film. On the other hand, the CG received exactly the same set of items in print; i.e., they were to read the transcript of that video recording. The students had 30 minutes to answer the same twelve questions. The data obtained from the performances of the two sample groups were compared and contrasted in order to determine the degree of comprehension of the contents of video-taped materials and the transcripts.

Results

First, a t-test was applied to test the difference between the performances of the two groups on CELT. Since the t value = -1.10 and the t critical = 2 and the t value was less than the t critical at .05 level of significance for 67 degrees of freedom, no significant difference between the two groups was observed. Therefore, all the students in the two groups could take part in the experiment. The statistical measurements are shown in Table 2.

The mean score for the performance of EG on CELT was 64.30, and the mean score for the CG's performance on CELT was 71.62. Moreover, the standard

Table 2: The Performances of the Two Sample Groups on CELT

t observed	df	t critical	Result
-1.10	67	2	no significant difference

* $p < .05$, two-tailed.



deviation calculated for the EG's performance on CELT was 22.37, and the standard deviation for the performance of CG was calculated as 33.06.

In order to examine whether the EG who received TVLCT did better than CG who received TRCT, another t-test was applied. Table 3 shows the results.

As shown in Table 3, the t value obtained from comparing the two means was equal to 3.94 (t value = 3.94), and the t critical at .05 level of significance was equal to 2 (t critical = 2). Since the t value exceeded the t critical for 68 degrees of freedom, it was concluded that the difference in the performances of the EG and the CG was highly significant.

From the above calculations, it is realized that the subjects who benefited from the technical video-taped materials scored higher on TVLCT than those who received the written transcripts of those video-taped materials. The mean score and the standard deviation for the EG's performance on TVLCT were 6.04 and 2.52, respectively. The mean score for the CG's performance was 4.36 and its standard deviation was 2.68.

Discussion and Conclusion

The central question of the study was whether there was any significant difference between the degree of the EST students' comprehension of the contents of the technical video-taped materials and the written transcripts of those same materials. To provide answer to this question, a t-test procedure was conducted. The outcome of this statistical procedure demonstrated that the t value was above the t critical so that the null hypothesis could safely be rejected. It means that the two sample groups scored differently on the final tests of TVLCT and TRCT. In simpler terms, the difference between the mean scores of the EG and the CG were statistically significant.

Table 3: The Performance of the EG on TVLCT Compared with the Performance of the CG on TRCT

t observed	df	t critical	Result
3.94	68	2	highly significant

* $p < .05$, two-tailed.

This may lead to the conclusion that the exploitation of technical video-taped materials in EST courses facilitates comprehension of the contents of technical materials. This may be due to the fact that the video recordings have a greater sensory impact than the lines on a printed page. Through the observation of technological equipment or even the schematic representation of them with accompanying voice, the EST students can associate what the speaker says with what they actually see through the visual channel. In this way, the students' linguistic background, as well as their previous information on the contents of those materials, seem to be more activated than when they are exposed to the materials via the medium of print. Besides, the video-taped materials seem to be helpful in terms of processing information and activating the EST learners' relevant schemata which result in better comprehension. Thus, the findings of this research can be useful for those dealing with materials preparation. Moreover, the role of an EST course is not only teaching the language but helping the students to use language for comprehension and learning. At this point, the role of audio-visual aids in activating the EST learners' schemata and thus their role in facilitating their comprehension should not be underestimated. Based on the findings of this study, the content area teachers are recommended to include technical video-taped materials as part of their instruction to help students learn more about the subject matter under instruction.

To summarize, almost all EST courses in Iran, like EST courses in many other countries, put emphasis on improving only the reading comprehension skill of EST learners. In other words, the need for English in such courses seems to be limited to the reading skill. The contents of the reading materials are likely to be discussed and translated in the first language; therefore, little attention is paid to the EST learners' listening comprehension ability. Informal talks with engineering students have indicated the need for improving the listening comprehension skill. They usually complain about the difficulty they face when taking part in seminars where lectures are delivered in English. As a matter of fact, a recent survey conducted in Iran reveals that although educators regarded the improvement of the learners' reading comprehension ability as the main objective of English courses, the Science and Humanities students showed interest in speaking and understanding the spoken



English along with grammar and vocabulary (Hajipour, 1998).

On the other hand, there is a large number of technical video-taped recordings available for use in EST courses. To improve the EST students' listening comprehension ability, "what is obviously needed is video-recorded material, so that the contribution of body language, blackboard work and other visual aids can be considered" (Candlin, 1991, p.105). Candlin further believed that "students need exposure to lengthy examples of listening, in preparation for the normal fifty-minute-long (or more) lectures of real life" (p. 105). With appropriate authentic video-taped materials tailored to the students' needs and specialty, the students' need for improving their listening comprehension ability will be met, and they will find language classes more interesting and enjoyable, because they feel that they are learning something which is practical and useful.

It is hoped that the findings of this research will provide a basis for the clear understanding of the potential benefits of the video-taped materials in language learning in EST settings. It is, further, hoped that materials designers and EST teachers will take into account the findings of this research, as well as the needs of the EST students concerning the comprehension and understanding of the aural inputs of various kinds such as listening to lectures, interacting in seminars, listening and watching video-taped recordings, and the like. It should be admitted that this research was just an initial step to demonstrate the usefulness of video-taped materials for teaching EST. Now, the question is how and to what degree audio-visual materials enhance learning. This question and others can be most effectively addressed through carefully conducted research studies. By discovering what the effects of the audio-visuals are, one hopes to observe future EST classes in our country utilize audio-visual materials to the extent that the learning process of Iranian students is maximized.

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