



THE INFLUENCE OF THE TAPE-RECORDER ON ATTAINMENT IN EFL

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This paper reports on a study undertaken in Bahrain secondary schools on the contribution of tape-recorders to learning outcomes in EFL. The results demonstrate a significant connection between the studied variables pertaining to the use of the tape-recorder and attained levels of proficiency. Students' proficiency was found to correlate significantly with their perception of the availability of tape-recorders in their schools, with their perception of the frequency with which their teacher uses a tape-recorder and with their perception of their teacher's manipulative skill in operating a tape-recorder. The pedagogical implications of these findings are discussed. Copyright © 1996 Elsevier Science Ltd

INTRODUCTION

The introduction of the audio-lingual approach in the late fifties and sixties shifted the main focus of attention in foreign language (FL) programmes away from reading and writing towards listening and speaking. Its precursor, the so-called direct method, had also focused on the development of listening and speaking skills, but it was pedagogically unprincipled and inefficient. The audio-lingual method, guided by principles of behaviourist psychology and structural linguistics, adopted more disciplined procedures and techniques based mainly on systematic pattern-drilling.

The value of the tape-recorder as an aid in developing listening skills was recognized very early on (cf. Billows, 1961; Jones, 1962; Coppen, 1969). By using a dual-track tape, tape-recorders were soon able to offer learners the chance to respond to verbal cues, and by means of a rewinding facility, to check their responses against a correct response, thereby providing immediate feedback and reinforcement in accordance with a basic prescription of behaviourist theories of learning. From being a simple audio aid, the tape-recorder thus developed into a more complex, audio-lingual aid. A logical next step was the development of the language laboratory, which was essentially just a number of tape-recorders connected to and under the command of a central console.

The language laboratory rapidly established itself as the state-of-the-art technology in foreign language teaching (cf. Turner, 1965; Stack, 1966; Coppen, 1969; Van Els *et al.*, 1983). Indeed, it seemed an ideal instrument for the audio-lingual method. In particular, it

allowed for the endless repetition of minimally different sentences generated mechanically out of substitution frames as a means of “drilling in” correct grammatical structures. It also seemed a perfect aid in the teaching of correct pronunciation, not least because it exposed learners to good native-speaker models, thereby cancelling out what was perceived as a major limitation of the non-native speaker instructor. So ideally suited was the aid to the method that in the mind of many practitioners, the aid *was* the method.

Following the widespread adoption of the audio-lingual method, language laboratories were set up in a great many educational institutions around the world in the late sixties and seventies. Scarce resources were used for the purchase of what in relation to the budgets of the time were extremely expensive pieces of equipment. Added to the cost of the equipment was the cost of the rooms needed to house them, of spare parts and maintenance, of technicians, and so on.

Even before the demise of the method, certain critical limitations of the language laboratory were becoming apparent. Quite apart from the initial cost, laboratories were very susceptible to breakdowns, spare parts were often in short supply especially after service contracts had expired, valuable class time was wasted shifting pupils from their classroom to the labs, operational difficulties repeatedly arose during class, and so on. In short, the lab, which was intended above anything to improve the efficiency of the method, proved to be operationally very inefficient except under the most favourable conditions.

After a brief interlude during which a more cognitively-oriented approach came back into vogue inspired by early TG grammar, the communicative approach began to emerge, influenced more by pragmatics and speech act theory, whose roots lie in the philosophy of language, than by structural linguistics. The new approach, by emphasizing the development of communicative rather than purely linguistic competence, revealed a further major weakness of the language laboratory: the learner simply could not communicate, much less negotiate meaning, with a machine. Although various adaptations of the laboratory were experimented with involving, for example, group interaction around each cassette outlet (see Littlejohn, 1983, 1985), it failed to meet the demands of the new methodology, which favoured role-play activities and improvisations in classroom simulations. Concurrent with the development of the communicative approach was a movement away from rote-learning and habit-formation towards task-based learning. This movement drew its inspiration from established pedagogical practices in primary education, and its theoretical foundations lay in cognitive rather than behaviourist theories of learning, on whose platform the audio-lingual method had been launched.

By the late seventies and early eighties, language laboratories in many institutions around the world were being abandoned and survived, if at all, as museum pieces representing a discredited methodology. In abandoning the language laboratory, however, practitioners run the risk of throwing away the baby with the bath water. The humble tape-recorder has been tainted with the shortcomings of the monolithic laboratory. The pendulum has swung away from almost total reliance upon the tape-recorder to almost total rejection of it. Yet the search for high-tech solutions to the problems inherent in foreign language learning continues. Many institutions are now investing heavily in video- and computer-assisted learning facilities, although the latter in particular seem to

suffer from most of the disadvantages of the language laboratory, especially in the context of a communicative approach, and offer few additional advantages.

It is not part of our purpose here to argue against experimentation in educational technology. We would like to sound a note of caution, however, about the widespread adoption of new and more sophisticated technology, especially in Third World countries. Over the past few decades, foreign language pedagogy has suffered enormously from an excessive preoccupation with methods (see Stern, 1983), which has bred a feeling of continual dissatisfaction with well-tried procedures and techniques. This dissatisfaction, however, has all too often led not to the perfecting of existing methods but to their wholesale abandonment before they have been fully developed or exploited and to the premature adoption of new methods, together with technological innovations that have not been properly evaluated under appropriate field conditions. Developing countries are much less able to react to and absorb change than more developed countries, and yet paradoxically they often have much greater faith in the power of technology to solve their developmental problems. Many schools and universities in the Third World are now pressing their educational authorities and aid donors to invest in a new generation of teaching aids to support their foreign language programmes. A new cycle seems about to begin involving the widespread adoption of computer-assisted learning facilities, which will no doubt in due course suffer the same fate as the language laboratories.

RATIONALE

The present study is not intended to evaluate pedagogical techniques involved in the use of tape-recorders for foreign language teaching. Enough has been written in the professional literature on how to make good pedagogical use of tape-recorders in the classroom (see, for example: Haycraft, 1978; Byrne, 1978; Rivers, 1981; Stevick, 1982; Parks, 1982; Gower and Watters, 1983; Harmer, 1983; Van Els *et al.*, 1983; Gunningworth, 1984; Al-Mutawa and Kailani, 1989; Heaton, 1990). The main reason for undertaking this study was to determine what influence tape-recorders, in a simple audio mode, have on attainment.

SUBJECTS

The study focused on a group of students who for eight years had been studying English as a foreign language using textbooks accompanied by pre-recorded listening materials. These materials were an integral part of the syllabus, and the tape-recorder was thus an essential audio aid.

The sample consisted of 327 secondary school students selected randomly from various GSSC (General Secondary School Certificate) programmes taking their first-term English language examinations as part of their school graduation requirements. A total of 143 students were drawn from the general secondary schools (109 science and 34 arts) and 149 from commercial secondary schools. The remaining 35 were drawn from technical secondary schools. The whole sample consisted of 166 female and 161 male students. Although drawn from different specializations, the group was highly homogeneous in

respect of age, nationality, mother-tongue, previous learning experiences, and both cultural and educational background. All the pupils in the sample were taught by Arab teachers, none of whom were native-speakers of English.

VARIABLES TESTED

A simple, self-report questionnaire consisting of three questions was prepared in Arabic for the purpose of measuring three variables pertaining to the use of the tape-recorder. The questions were concerned with measuring students' perception of the availability of tape-recorders in their schools, their perception of their frequency of use, and their perception of their teacher's manipulative skill in operating them. The responses to Question One were scored as 2 (available)—1 (uncertain)—0 (not available); the responses to Question Two were scored as 3 (often)—2 (sometimes)—1 (rarely)—0 (never); and the responses to Question Three were scored as 3 (good)—2 (fair)—1 (poor)—0 (none).

Since the respondents were school children, it was considered essential to use questions that could be easily understood and easily answered. Generally speaking, secondary school pupils are not able to judge the effectiveness of their teacher's use of tape-recorders. They are not, pedagogically speaking, competent enough to respond to questionnaire items that focus on the appropriateness of their teacher's techniques in using the aid or the appropriateness of the language materials used. These research elements are beyond their level of comprehension and judgement. The questions included in the self-report questionnaire were therefore limited to measuring variables that the students were thought capable of directly observing in the classroom. Students can reasonably be expected to know whether a tape-recorder is available in their school and how often their teacher uses it. They can also be relied upon to make valid judgements concerning their teacher's skill in using the aid, i.e. in operating the machine, in finding the right material on the tape at the right place, and so on.

It was decided to administer the questionnaire to students rather than teachers for two reasons: firstly, and most importantly, because it was felt that students' perceptions regarding the use of tape-recorders would be more likely to influence their level of attainment than teachers' perceptions, and secondly, because it was suspected that teachers would be inclined to exaggerate the amount of use they make of tape-recorders, as well as their manipulative skill in operating them.

ACHIEVEMENT SCORES

The results of the questionnaire were analysed with a view to examining their degree of connection with scores obtained from the students' end-of-term achievement examination. The examinations incorporated a multiple-choice reading comprehension test, a multiple-choice grammar and usage test, a free composition test and a cloze test in the standard format for reading. All the examinations were more or less similar in content except for those given to students in the commercial and technical schools, which tended

Table 1. Distribution of the students' exam results

Type of student	Pass	Fail	Total
Male	85	76	161
Female	99	67	166
Overall	184	143	327

Table 2. Pearson correlations between first- and second-term examination results

Type of student	<i>N</i>	<i>R</i>	Significance
Male	161	0.7	$p < .05$
Female	166	0.7	$p < .05$
Overall	327	0.6	$p < .05$

to incorporate ESP content passages. None of the examinations contained any material that could be said to relate directly to the use of the tape-recorders. In particular, none of them contained a listening comprehension test.

Success ratio

It is important at the outset to give the number of respondents who, according to the present examination system, failed in their first-term examination and those who were considered to have been successful. The present examination policy states that if the student's score in the subject is below 50%, s/he is considered a failure. Table 1 gives the distribution of the respondents' end-of-term examination results.

Reliability of exam results

To determine the reliability of the students' achievement scores, they were correlated with their scores in a second-term achievement examination. The Pearson Product Moment Correlations and the values obtained are given in Table 2.

The table shows that the magnitude of the correlation is fairly high in respect to both males and females, implying a reasonably consistent association between the two sets of scores. The scores for the first term can therefore be considered to have been reliable.

HYPOTHESES

The following three null hypotheses were formulated:

- H.1 There is no significant connection between students' level of attainment in English and their perception of the availability of the tape-recorder.
- H.2 There is no significant connection between students' level of attainment in English and their perception of their teacher's frequency of use of the tape-recorder.
- H.3 There is no significant connection between students' level of attainment in English and their perception of their teacher's skill in manipulating the tape-recorder.

DATA ANALYSIS

The students' responses to the items of the questionnaire were statistically analysed with a view to investigating their possible influence on the students' achievement results in the first-term examinations and thus to test the formulated null hypotheses. A one-way analysis of variance was used to determine whether or not there was any significant connection between attainment and the tested variable. Multiple classification analysis techniques were used in the further statistical analyses of the data.

Availability of the tape-recorder

Table 3 gives the result of the analysis of variance in respect of students' perception of the availability of tape-recorders in their school.

The result shown in the table is highly significant: the students' attainment in English varied consistently with the degree of their perception of the availability of the tape-recorder in their school.

Although the result turned out to be highly significant, it was necessary to examine the relationship between the mean score corresponding to each category of the criterion variable and the grand mean of the students' achievement scores in order to determine whether the result was significant in the way anticipated—in other words, to confirm that the students' attainment levels were positively and not negatively influenced by the tested variable. A multiple classification analysis (MCA) table was obtained to show the pattern of mean scores in relation to the categories of the availability variable.

Table 4 indicates that the students who reported that a tape-recorder was available in their school had higher mean achievement scores than those who were uncertain. The latter, in turn, had higher mean achievement scores than those who stated that no tape-recorder was available.

Table 3. Analysis of variance of attainment scores by availability of the tape-recorder

Source of deviation	DF	Sum of squares	Mean square	MSR	Significance
Availability	2	5018.4	2509.2	6.493	0.002
residual	313	120949.0	386.4		
Total	315	125967.0			

Table 4. Mean achievement scores by availability of the tape-recorder

Availability	N	Mean score
No	11	44.36
Uncertain	45	47.60
Yes	260	57.30
	316*	Grand mean = 55.47

*11 of the subjects did not respond.

The result obtained in the analysis of variance plus the corresponding result from the multiple classification analysis confirm that the students' attainment in English was positively influenced by their perception of the availability of the tape-recorder. Hypothesis 1 was therefore rejected.

Frequency of use of the tape-recorder

To test Hypothesis 2, the connection between the students' attainment in English and their perception of the frequency with which their teacher used the tape-recorder was investigated. The result of the one-way analysis of variance obtained is given in Table 5.

Again, the result shows that the students' attainment in English varied consistently with the tested variable. The multiple classification analysis provides the following additional data.

Table 6 indicates that the students who reported that a tape-recorder was often used by their English language teacher had higher mean achievement scores than those who reported that the tape-recorder was sometimes or rarely used. The latter, in turn, had higher mean achievement scores than those who stated that the tape-recorder was never used.

The result obtained in the analysis of variance together with the corresponding result of the multiple classification analysis confirm that the students' attainment was positively influenced by their perception of the frequency of use of the tape-recorder by their teacher. On the basis of these findings, Hypothesis 2 was rejected.

Teachers' skill in using the aid

Hypothesis 3 was tested by investigating the degree of connection between the students' attainment in English and their perception of their teacher's skill in using the tape-recorder. The result of the one-way analysis of variance obtained is given in Table 7.

Table 5. Analysis of variance of achievement scores by students' perception of the teacher's frequency of use of the tape-recorder

Source of variation	DF	Sum of squares	Mean square	MSR	Significance
Frequency	3	6877.2	2292.4	6.031	0.001
residual	311	118207.7	380.08		
Total	314	125085			

Table 6. Mean achievement scores by the teachers' frequency of use of the tape-recorder

Frequency of use	N	Mean score
Never	49	49.36
Rarely	39	51.97
Sometimes	104	53.38
Often	123	61.26
	315*	Grand mean: 55.66

*12 subjects did not respond.

Table 7. Analysis of variance of achievement scores by students' perception of the teacher's skill in using the tape-recorder

Source of variation	DF	Sum of squares	Mean square	MSR	Significance
Skill	3	5899.785	1966.595	4.960	0.002
residual	276	109430.5	396.487		
Total	279	115330.3			

Table 8. Mean achievement scores by teachers' skill in using the aid

Perceived skill	<i>N</i>	Mean score
None	34*	46.05
Poor	19	50.30
Fair	90	54.35
Good	137	59.54
	280 [†]	Grand mean = 55.61

* Of the 34 subjects who reported that their teacher demonstrated no skill in using the tape-recorder, nearly all reported that the teacher used it only rarely or occasionally. However, two reported that their teacher never used a tape-recorder in class, and they must presumably have inferred from this that the teacher lacked the necessary skill. This slight inconsistency has no significant bearing on the overall results.

[†]47 of the 327 subjects did not respond.

The result displayed in Table 7 is again highly significant and shows that the students' attainment in English varied consistently with their perception of the degree of skill demonstrated by the teacher in using the aid. The following MCA table shows the pattern of mean scores in relation to the teacher's perceived skill in using the tape-recorder.

Table 8 shows that the students who reported that their English language teacher was good at using the tape-recorder had higher mean achievement scores than those who reported that their teacher was a fair or poor user of the tape-recorder. These, in turn, had higher mean achievement scores than those who reported that their teacher demonstrated no skill whatsoever in using the tape-recorder.

The result obtained in the analysis of variance in conjunction with the result of the multiple classification analysis confirms that the students' attainment in English was positively influenced by their perception of their teacher's skill in using the tape-recorder. Hypothesis 3 was therefore rejected.

DISCUSSION

Taken at their face value, the results of the present study suggest that the use of the tape-recorder by teachers who are not native speakers of English can have a positive impact on attainment in EFL. The results are all the more remarkable since the test instruments used did not include a test of listening comprehension. It is reasonable to

assume that if such a test had been used, the study would have shown an even stronger connection between attainment and the studied variables. Although the findings may seem at first glance to be very persuasive, however, they nonetheless need to be treated with some degree of caution, for it is possible that the reported levels of attainment were influenced by other variables that have not been taken into account in the study.

It is possible, for instance, that the results were influenced by socio-economic factors affecting not only the availability of tape-recorders in the schools but also other relevant variables. The very fact that a school possesses a sufficient number of tape-recorders to permit their frequent use in the EFL classroom could be taken to imply a relatively high level of support generally for English language teaching, not only in the school itself but also in the community that it serves. If the availability of tape-recorders does in fact reflect a relatively high level of support for English, the support could well be reflected in a variety of other ways—for example, in smaller class sizes, in more parental encouragement, in greater exposure to English outside the school, and so on. Any one of these factors could exert a strong positive influence on attainment independently of the use of the tape-recorder. It needs to be pointed out in this connection, however, that the respondents were drawn from state schools, all of which have roughly equal class sizes at any given level in the school system and all of which are entitled to the same level of funding as far as the purchase of equipment is concerned. The respondents, furthermore, were all secondary school pupils, and secondary schools in Bahrain, unlike primary schools, all serve a fairly wide and socially diverse catchment area. More research is needed to determine the significance of socio-economic variables on attainment in EFL in Bahrain, but there is no evidence at present available to suggest that the availability of tape-recorders in schools is dependent upon the location of the school or the socio-economic background of the pupils.

A possibly more serious source of error might be differences in the relative competence of the teachers involved in the study. It is reasonable to assume that the effective use of the tape-recorder requires a relatively high level of training and pedagogical competence on the part of the teacher. If this assumption is correct, the question arises whether the apparent benefits that derive from the use of the tape-recorder can be properly attributed to the use of the tape-recorder rather than to the all-round pedagogical skills that its effective use demands. The same skills, it may be argued, would exert a positive influence on attainment even without the use of the tape-recorder. It is hard to believe, however, that a competent, experienced teacher would persist in making frequent use of a particular teaching aid if s/he could achieve the same results without it. It may well be the case that the effective use of the tape-recorder requires broad pedagogical skills and a relatively high level of training, but the results of the present study suggest that it is at least partly through the use of the tape-recorder that the skill and training of a good EFL teacher manifests itself and influences attainment.

CONCLUDING REMARKS

For several decades, EFL teachers have had at their disposal a simple and effective teaching aid in the form of the tape-recorder and yet, possibly because very little empirical evidence has emerged to support its continued use, it has remained relatively underutilized.

The results of the present study, although by no means conclusive, suggest that the tape-recorder still has a potentially valuable role to play in the EFL classroom. It is to be hoped that the study will encourage those responsible for designing and teaching EFL programmes, especially in countries with limited pedagogical resources, to fully exploit the potential of the tape-recorder before abandoning it in favour of some more sophisticated but possibly less effective aid.

In order for the full potential of the tape-recorder to be realized, however, certain basic conditions need to be met. First and most important, it is essential that sufficient numbers of tape-recorders be made available, not just in the school but also in the classrooms. It is pointless to have tape-recorders in the school if teachers have to arrange for them to be delivered to the classroom for their language teaching sessions. Having each classroom equipped with its own recorder will not only make learners more aware of its role as an integral part of the school's foreign language programme, but it will also encourage teachers to use it more often. The cost of equipping each classroom with a tape-recorder would almost certainly be less than the cost of a single language laboratory. Used properly and carefully by the teachers, furthermore, individual tape-recorders will require considerably less maintenance than a standard language laboratory.

Secondly, the findings relating to the second variable investigated in the study suggest that teachers need to make frequent use of the tape-recorder if its value is to be fully realized. Occasional, intermittent use of the aid appears to have only marginal impact on learning outcomes. The findings support the view, furthermore, that learners need to be exposed to ample listening comprehension exercises from an early stage in the learning process (see Van Els *et al.*, 1984). The idea that the introduction of the tape-recorder should be delayed until learners are sufficiently advanced to understand natural, authentic speech in real communicative situations is not supported by the present study. Although the subjects involved in the study had been studying English for a number of years, the majority were far from being able to understand authentic English as used, for example, on the radio or television.

Finally, the results of the study clearly show that teachers need to demonstrate skill in using the aid so that positive attitudinal outlooks on the part of the learners can be enhanced. Incompetent handling of the equipment is likely to have a detrimental effect on student motivation and may well be counter-productive. The lesson to be learnt from the present findings is that if the tape-recorder is to be used, it must be used with a high degree of manipulative skill and efficiency. The obvious way to achieve operational efficiency, of course, is by ensuring that language teachers receive proper training in the use of tape-recorders. Training in the most effective techniques should be provided to teacher trainees through educational technology workshops. Such workshops should be provided, furthermore, not only during pre-service training but also as an integral component of in-service training programmes so that practising teachers can have the opportunity to update their skills and techniques in using the tape-recorder. It should be borne in mind, however, that the results of the present study support the use of the tape-recorder as a simple audio device and lend no support at all to its use as an audio-lingual aid. This is not to say, of course, that it cannot be successfully used in a more sophisticated mode, but ordinary practitioners would be well-advised to explore its full potential as a listening aid before attempting to adapt it to serve pedagogical purposes for which it may not be intrinsically well-suited.

Note. Although reference is made throughout to tape-recorders, the remarks apply equally well to cassette-players.

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